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Railway Age

FIRST HALF OF 1923—No. 8 NEW YORK—FEBRUARY 24, 1923—CHICAGO SIXTY-EIGHTH YEAR

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Volume 74 No. 8

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EDITORIAL

Railway Age

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Tell the Good Things You Are Doing

THE PUBLIC RELATIONS department of the Southern Pacific recently issued an interview with the passenger traffic manager of the road telling of a campaign the management has been making to suppress unnecessary noises around sleeping cars which have to be kept standing in stations after passengers have gone to bed. A correspondent whose letter we published in our last issue deprecated the action of the Southern Pacific's publicity department in telling about this campaign as "funny advertising," and criticized the publicity man for having "pressed the passenger traffic manager into service as the chief figure in an interview on a subject which no reporter would think of asking him about."

The *Railway Age* disagrees with this criticism. Most men who have had much experience as newspaper reporters will dissent from the statement that no reporter would ask for an interview on this subject. Anybody who frequently goes to bed in sleeping cars that are kept standing late at night knows that unnecessary noises are made in almost every station, to the discomfort and distress of passengers who desire to sleep. If it is true, as our correspondent implied, that every decent station master has been trying to suppress such noises for 25 years, the efforts of many of them have not been successful. Since greater efforts to suppress unnecessary noises in stations at night are obviously required, a story about such efforts being made has "human interest," and also has the merit of telling of a good thing that one railroad is doing. The Pullman Company recently has adopted the practice of hanging cards near the entrances of its cars at night urging "quiet" upon passengers who are not in bed, in the interest of the comfort of those who are. In view of the thousands of people who are annoyed every night in sleeping cars by the inconsiderateness of their fellow travelers, this is a good thing to do, and is worthy of publicity.

Too many people connected with railroads are prone to think that the only things that are worth doing and giving publicity to are things that are of immediate importance in getting business and handling it economically. This is a mistake. There are a thousand comparatively little things that every railway management can cause to be done which would tend to create a friendly feeling on the part of their patrons, and thereby help in the long run to increase net earnings. The ticket clerk who courteously gives the buyer of a ticket all the attention he desires; the station master who spares no effort to prevent unnecessary noises about sleeping cars at night; the rate clerk who always talks like a gentleman over the telephone to inquirers; the conductor who greets passengers with a smile and not in an overbearing manner as if he owned the train; the information bureau clerk who gives information as if he was glad to do it—in other words, every employee who treats patrons as if he was glad to have them patronize his railroad—helps make public sentiment that is beneficial to the railroads. And so does the publicity man who gives the public information regarding every effort railway officers are making to improve the service, whether in small matters or in great.

Freight Rates and Prices

STATISTICS just issued by government bodies show that during the year 1922 there was a decline in railway rates and advances in the prices of commodities as the result of which, at the end of the year, the average freight rate was lower compared with the average wholesale price of commodities than in 1913. The Bureau of Labor Statistics is the authority for the statistics regarding prices. It bases its computations regarding changes in prices upon the prices which prevailed in 1913. It is really unfair to the railways to compare present freight rates and prices with those of 1913, because for some years before 1913 railway rates had been declining and prices had been increasing. But railway rates can now bear even this unfair comparison.

The latest figure regarding the average freight rate per ton per mile which the Interstate Commerce Commission has made public is that for November, 1922. It was 1.119 cents, as compared with 1.284 cents in November, 1921, the decline during the year being almost 13 per cent. The statistics regarding prices just issued by the Bureau of Labor Statistics show that in December, 1922, the average wholesale price of all commodities was almost 11½ per cent higher than in December, 1921. The increase in the average wholesale price of farm products during the year was 20 per cent; of building materials, 19 per cent; of fuel and lighting materials, 8 per cent; and of metals and metal products, 16 per cent. Owing to these changes the average rate per ton per mile and the average wholesale prices of the groups of commodities for which the Bureau of Labor gives the figures were, at the end of the year, the following percentages higher than in the year 1913:

	Per cent
Rate per ton per mile	55
All commodities	56
Foods	44
Cloths and clothing	94
Fuel and lighting	116
Metals and metal products	31
Building materials	88
Chemicals and dyes	30
House furnishing goods	82
Miscellaneous commodities	22

The effect of the advance during the year of the prices of farm products is strikingly illustrated by a statement which

was issued last week by the Department of Agriculture. According to this statement the total value, *on the farms*, of the farm products produced in 1922 was $14,310,000,000. This exceeded by $1,944,000,000 the Department of Agriculture's estimate of the farm value of the farm products of 1921. This estimate of the Department of Agriculture largely exceeds estimates previously made by the American Farm Bureau Federation of the total annual income of the farmers.

Since the agitation now being carried on for reductions of freight rates on farm products is based mainly on the ground that the farmers cannot pay the present rates and profitably conduct their business, a comparison of this estimate of the farm value of farm products with the total amount paid for the transportation of farm products becomes quite pertinent. In a recent issue the *Railway Age* gave the method and result of a computation which led to the conclusion that in 1922 the farmers paid about $560,000,000 in freight rates on their products. This is less than 4 per cent of the Department of Agriculture's estimate of the *farm value* of farm products in 1922—in other words, their value before any freight rates had been paid on them.

These statistics indicate that all previous estimates of the ratio between what the farmer pays for the transportation of his products and their total value have been too high. The fact is usually overlooked that a very large part of the products of the farms are consumed without ever being shipped by railroad. The farmers feed a large part of their crops, especially corn, to their livestock. Approximately thirty million people live upon the farms, and a large part of the fruits, vegetables, cereals and livestock produced upon the farms are consumed by those who live on them without ever leaving the farms. In addition, the farmers sell a substantial part of their products directly to the people living in rural villages and towns, and this part of their product is not shipped by railroad. Now, all these farm products that are consumed upon the farms and in the rural villages and towns help to swell the total value of farm products; but no freight rates are paid upon them, and this is one of the principal reasons, of course, why the total freight paid on farm products is so small in proportion to the total value of the products of the farms.

Freight rates are a considerable part of the value of farm products which are produced long distances from the great primary markets and actually shipped to them, and they must always be. It is impossible to haul any kind of commodities long distances without charging rates that are relatively high in proportion to their value. But all farm products are not produced long distances from their markets; and the present clamor is against freight rates upon all farm products.

The facts show that those who represent to the farmer that he is being ruined by high freight rates are grossly misleading him. His freight rates are nowhere near as important to him as good railway service, and they are not near as high relatively as the prices he is paying for most of the commodities whose purchases enter largely into his expenses. His present freight rates are, on the average, about 13 per cent lower and the selling prices of his products about 20 per cent higher than they were a year ago. The railways are the only large industry in the United States which, within the last year, have given him a substantial reduction in the price of anything he has to buy. Most of the industries from which he buys have advanced the prices he has to pay. The total freight rates he pays on his products are less than the total taxes he pays; much less than the total interest he pays on his debts, and only about one-eighth as much as what he spends for machinery and other commodities. The freight rates paid by the average farmer are not, and never have been, a relatively large part of either his total expenses or his total income.

The demand for reductions in freight rates which has been made within the last two years has been based chiefly upon the ground that freight rates have been too high in proportion to prices. At the end of the year 1921 the average freight rate was about 78 per cent higher than in 1913, while the average wholesale price of all commodities was only about 40 per cent higher. Now that, as a result of the changes during the last year, the average wholesale price of all commodities is actually higher as compared with 1913 than the average freight rate, this argument has completely lost its validity as respects freight rates as a whole. The average freight rate is still higher relatively than the average wholesale price of farm products. But the farmers have been given a reduction of railway rates within the last year, and they should look elsewhere for the present for further relief from the disparity which still exists between the prices of what they sell and the prices of what they buy.

Value of Co-operation Between Departments

IT FREQUENTLY occurs that individual departments of a large railroad take action which is so closely allied to the activities of other departments that close co-operation would result to the benefit of both: As an example, the chief electrician of the bridge and building department of a western road was recently authorized to spend $4,500 for an electrical fire alarm and watchman's reporting system at a large shop. At the same time the telegraph department secured authority to spend $1,500 for the rehabilitation and overhauling of the manually operated telephone exchange in the same shop.

When bids for this equipment were requested, one manufacturer pointed out that an automatic telephone exchange, meeting the requirements of a fire alarm and watchman's reporting system, in addition to the regular telephone service, could be installed at a cost not to exceed that authorized for the separate purposes and this suggestion was accepted. As now installed the new automatic telephone system gives quicker service, 24 hours a day, without the employment of an operator. Also the watchman, when making his rounds, simply dials off his number at the telephones located in the various buildings, thereby operating an indicator in the engineer's room at the power house. A fire can be reported from any telephone, causing a gong to ring and operating an indicator in the office of the engineer, showing the location from which the alarm was sent. The engineer at once blows a coded whistle, warning all the men where the fire is located. Therefore, the fire alarm and the watchman's reporting system may be considered as a by-product of the

telephone system. There are many circumstances in the construction and maintenance of electrical equipment, such as pole lines and electrical power supply, in which the interests of the electrical, telegraph and signal departments are interconnected. Therefore it would seem advisable to secure closer co-operation of these interests, by perhaps requiring the heads of these departments to note all estimates being considered for work in any one of these three departments.

A True Incident

A PROMINENT manufacturer of small tools offered for test on a certain railroad, which shall be nameless, a set of tools which can be called high speed twist drills. These drills were offered, and after some correspondence shipped to the railroad free of charge with the understanding that they be tested under actual shop conditions and a production record kept, the manufacturer feeling sure that the superior qualities of the drills would result in future orders. On receipt of the drills the superintendent of motive power reconsidered his decision to make the drill tests, explaining to the manufacturer that, owing to labor conditions in the shop, it would be inadvisable to attempt to obtain any records of production. He said that the union committee and shopmen would think he was checking some man's efficiency, or was making time studies with a view to introducing piecework. The drills were shipped back to the manufacturer without being unpacked! This incident occurred before the recent shopmen's strike; it would probably not happen on the same road today or on most other roads.

On the other hand, it does indicate the vital necessity of building up a spirit of co-operation on the part of shop employees and of educating them to certain simple economic principles relating to production and wages.

What Is a Specification For?

A SPECIFICATION of any kind is drawn to be enforced. Unless enforced it is valueless and becomes a dead letter. Its enforcement fairly is a benefit alike to the honest buyer and seller and a stumbling block to those on either side who desire to resort to subterfuge or deception. Furthermore, it must be enforced uniformly at all times to be effective. It is a basic principle of purchasing that competition reacts to the benefit of the buyer. If this is to be secured and maintained there must be a clear definition of standards so that tenders may be made intelligently.

For the first time there is now a standard specification for ties. From a large number of widely divergent cross tie specifications, there has been developed a single standard. Uniform enforcement of the requirements of that standard will make it possible for each road to secure genuine competition for tie business from a large field of producers, thereby stimulating rivalry to its advantage. At the same time a tie operator can proceed with an orderly routine production of a standard, marketable product, knowing that if he cannot dispose of it to one road, it will be salable to others. Without such uniformity there can be no stable production in advance of receipt of orders, which condition has resulted in alternate periods of feast and famine, from which the roads and producers alike have suffered acutely at frequent intervals in the past. The interests of all concerned demand that tie production be placed on a more stable basis and that the element of chance be reduced to the minimum.

Second in importance only to the preparation and adoption of a uniform specification for ties is their uniform inspection under its provisions. This requires a corps of able men, competently trained, and impressed with the necessity for a fair enforcement of its provisions. With such a uniform inspection under a standard specification the identity of a road or of an inspector is immaterial to the producer. Without it, this becomes a matter of paramount importance.

That tie specifications were not uniformly interpreted and enforced in the past is notorious. Practice on a single road varied between seasons and between years and even more widely between roads. When ties were scarce, deviations from standards were disregarded openly and ties inferior to those specified were accepted. At other times, and frequently without warning, when the market conditions were reversed, the roads imposed an unnecessarily strict inspection for the purpose of rejecting as many ties as possible, which were left in the hands of the producer to dispose of as best he could.

Another practice which long has been followed by the purchasing departments of some roads is that of "grading up" the ties or accepting them as conforming to grades above those to which they belong according to a strict interpretation of the specifications. A contractor familiar with this practice can bid lower than one not acquainted with the facts and thereby secure the business. This practice neither changes the cost of production of the tie nor its size or grade, nor does it lessen railway maintenance costs. The result is to make an unfair comparison with other roads which adhere to the specifications and to give a false impression to the management of the road supplied with inferior ties that its purchasing department is more efficient in comparison with those of other roads than the facts warrant.

Of late there are indications that for one reason or another some roads are returning to these practices with all of the demoralizing influences that follow. In one producing area a recent investigation showed that inspectors for one road were accepting and shipping as A. R. E. A., Grade 3 ties, thousands which had been rejected by representatives of another company for failure to comply with these same specifications for even the smaller Grade 1 ties, paying the current price for Grade 3 in that section. This practice has been indulged in so openly in some areas that ties bearing the rejection mark of the first inspector have been accepted as standard grades while other producers have asked the inspectors of those roads which adhere to the specifications not to place any marks on the ties which they cull as these marks tend to hurt their sale as standard ties to other roads.

There can be no objection to any road buying ties which do not comply with specifications; in fact, it is to the interests of conservation that all ties produced find a use, but their acceptance should not be on a basis sufficiently liberal

to encourage their production. The objection arises from their acceptance for what they are not, viz., a standard tie. The road which permits or encourages such action not only injects a demoralizing influence in the industry, but opens the way for further violations of specifications by its own employees or representatives, which may lead to serious consequences in other cases.

The Foreign Trade Convention

THE National Foreign Trade Council has included a discussion of the relation of railways to foreign trade in the program for the Tenth National Foreign Trade Convention to be held in New Orleans on May 2, 3 and 4. For the past two years the foreign trade conventions have paid no attention whatever to the relation of the railroads to their problem. Instead they have turned over the floor to supporters of pork-barrel legislation to secure millions of public funds for dredging rivers and building canals so that water competition could bring down railway rates. We sincerely regretted that total ignoring of the service of railways to foreign trade in the programs of the last two foreign trade conventions and we are correspondingly pleased to see that the National Foreign Trade Council has at last come around to our way of thinking.

We feel, therefore, that while the provisions made for discussing the relation of the railways to foreign trade at the coming convention are not as complete as they should be, nevertheless railway men and railway supplymen will find such discussion as has been provided for well worth their attention and ample justification for their representation at the convention.

New Books

Handbook of Construction Costs.—By Halbert P. Gillette, editor of Engineering and Contracting. 1,734 pages, illustrated, 4½ in. by 6½ in. Bound in flexible leather. Published by McGraw-Hill Book Company, New York City.

Judging from the preface and the general contents of this volume, the "Handbook of Construction Costs" is designed to supplement the earlier text on cost data previously published under the same authorship. As in the case of the earlier volumes, the text consists for the most part of detailed accounts of the cost of various construction items, gathered from various sources, and carefully arranged and grouped so as to give condensed matter in the maximum variety on each of a large number of principal construction subdivisions. The condensation, has not been carried to the point where the text fails to give the reader a clear understanding of the circumstances under which the costs were incurred. Most of the data are from articles that have appeared in current engineering periodicals and many of them will be familiar to the man who has been a close student in any particular engineering field. The introduction to the volume, in the form of two preliminary chapters on engineering economics and prices and wages, serves to give the reader a background of fundamentals as a means of preparing him for a more intelligent use of the detailed data found in the other chapters. The book covers a wide range of construction activities, including sewers, irrigation, water supply, bridge, railroad tunnels, buildings, etc.

Letters to the Editor

[*The* RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.*]

Too Much Regulation

CLAREDON, Va.

TO THE EDITOR:

Do you not think that if some of the laws relating to the operation and regulation of railroads were repealed it would redound to the mutual advantage of the public as well as the railroads? How about the following suggestion?

"Whereas, it pleased the Ruler of the Universe to permit our forefathers to land upon the Western Hemisphere, and

"Whereas, by sacrificing their fortunes, health and life, they developed this nation and with bands of steel linked the Atlantic with the Pacific and the Gulf of Mexico to the Great Lakes, upon which the commerce of the nation may freely move and the people travel to and fro for business or pleasure, and

"Whereas, the transportation lines have not kept pace with the developments of the nation, and

"Whereas, the people are the nation and all transportation lines owe their existence to the people by right of eminent domain, and believing to starve the railroads, we starve ourselves.

"Therefore, Be it resolved that we the people demand that all laws that have been placed on the statute books since the Hepburn rate bill, regarding operation and regulation of transportation lines be repealed, and the said lines be allowed to work out their own salvation, ever keeping in mind the people which gave them life and from whom they must receive their support.

"Therefore, Be it further resolved that the people in all walks of life should uphold, support and sustain its transportation lines in all lawful undertaking and developments, that the nation may grow and prosper and the undeveloped be developed and the deserts blossom as the rose.

"To this end the railroads and the people should work, ever keeping in mind that transportation is the life-blood of commerce and commerce is the life-blood of the nation."

R. A. BURKS.

Improving Relations With the Employees

PORTLAND, Ore.

TO THE EDITOR:

After 43 years of service in the railroad game, filling various positions, one naturally feels like saying something in your discussion on bringing the employee closer to the official.

There is only one way to do it and that is by the employee himself. He seems to forget, when he is promoted, where he came from and that he is liable to go back. Railroad presidents have gone back, as far as trainmaster—and I recall one who went back to telegraphing, but of course went up again. So we all are subject to the same conditions and no air of superior gift should be assumed by any officials towards employees.

I personally knew an official some years ago whom you

could stop long enough to talk to, and who you were sure would give you a square deal; when all else failed you always had one more chance with this man. I saw him in the telegraph office copying telegrams with operators for a few minutes, and when he "signed" on the wire everybody knew his "fist." He would stop in the dispatcher's office, sit beside the trick man and "listen"—then leave a cigar and walk into his office. I saw him sitting on the end of a tie, at noon, one hot summer day, eating lunch with a section "jerry" talking "track." When riding on trains he was in the cab or cupola, and when in his business car (not private) the trainmen always had a good feed. That fellow had all kinds of presents given him and was a grand success. Employees thought of him, while working, and protected his interest everywhere. In the yards I saw him talk with switchmen in the shanty. The coal chute men and tank pumper did not escape him. That's the way to bring about closer relations with employees.

I have also seen men promoted to foremen and the next day the cigar was stuck up at an angle of 45 degrees. I have seen officials enter offices and never look up at the poor devils doing the work that kept the wheels rolling. Now you know very well that no one in that office or elsewhere is going to try to catch any run-a-way cars for this man.

AN OLDTIMER.

How Can the Public Learn the Truth?

PITTSBURGH, Pa.

TO THE EDITOR:

The above was the title of a very significant article in your paper for February 3, page 321, wherein you reported a recent address at Chicago by F. W. Sargent, general solicitor of the Chicago & North Western; and one of Mr. Sargent's most trenchant paragraphs was that in which he called for an educational campaign "by organizations whose motives are above suspicion." How and in what way can such an organization be created? Everybody knows that it is needed; but when is anybody going to act? Is there such in existence anywhere, now? Even the church organizations, when they attempted to report on labor conditions in the steel industry, a few years ago, were accused of including in their deliverance some partisan propaganda. The proposed national transportation institute is good in theory; but will it not be rather slow? To have an organization that can strike while the iron is hot, there must be a limitation to the number of men in it, and also perhaps a limit on the territory to be covered.

An organization above suspicion means leaders above suspicion; that is, individual men. The great need everywhere, in all public affairs, is leaders. The difficulty in selecting leaders is due to our penchant for worshiping strong and bold men. The men who are above suspicion sometimes rate, in strength and boldness, a little below the standards of business energy set by conservative financial interests. To get probity we may have to sacrifice in some degree the desired brilliancy.

As an illustration of what is needed in America today a recent enterprise of the Philadelphia Public Ledger is instructive. Every day—or at least very frequently—that paper published an article by former President William Howard Taft. That was an example of intelligent treatment of public questions by a man whose motives were above suspicion. Mr. Taft is now engaged in discussing public questions in another and supremely useful field, and the securing of his services for any such thing as railroad propaganda is out of the question; but the need of some man or men like him is very definite. It is, in fact, a pressing need. It is greatly to be regretted that railroad managers and directors and railroad investors do not more fully realize that this is the case.

I am not claiming that a daily letter, filling a single column in a newspaper will be the best or the only means by which to educate or inform the public in sound theories of dealing with railroad problems, but *this fundamental principle* must be recognized. The crying need is for the frequent broadcasting—not by radio; that is too flashy—broadcasting of *full* information through unimpeachable channels.

The term "above suspicion" means a great deal. The labor leaders pretend to be suspicious of every man, no matter how eminent or respectable, who says a word in favor of capital. Such disingenuous leaders of public sentiment must be made to retract or else be exposed in detail. So long as they are at large they are a menace. The capitalist cannot himself allay this real or pretended suspicion on the part of these leaders.

The ideal educator of the public must be above suspicion not only as to his motives but also as to his knowledge. Mr. Taft's experience of many years as a judge in the lower courts gave full confidence that he had judicial knowledge as well as a judicial temperament. Dr. Henry S. Pritchett, president of the Carnegie Foundation, is another man who is big enough to be above suspicion; who can have the courage to say what he thinks, even if it hurts some people. Mark Sullivan, the political journalist, is another who says what he thinks, and who gets down to the essentials.

These names are the first that I think of. Every well-wisher of honest railroading and honest financing should seek to be able to name names in this way. The relations of railroads to the public—that is, the voters—has become a political question (political in the best sense) and political methods must be adopted. Leading men must be brought before the people just as is done by the wisest and most public-spirited politicians. If railroads are going to make friends with the public, they must not only find railroad men to talk to the public, but must induce public men (not now well-informed in railroad detail) to listen; and to become so interested in listening as to talk back; that is, to respond with real interest. There must be innumerable lively dialogs before railroad leaders and non-railroad leading men will become so fully in sympathy with each other that their sympathy will spread to the ordinary citizen.

INVESTOR.

Commissioners of the Port of New York Authority

NEW YORK CITY

TO THE EDITOR:

In your issue of January 20, 1923, there appeared an editorial under the heading "The Problem of the Port of New York" in which you say "the present situation is largely the result of there having been involved six able men, all good and active publicists, but without actual railway experience on the one hand, and heads of nine railroads, all good active railroad operating men, but without much publicity experience on the other hand."

Being one of the said six commissioners of the Port Authority, I want personally to take exception to this statement which I do not think is correct in the shortcomings which it imputes to either of these two sets of men.

As an engineering executive and member of an engineering firm which for 29 years has specialized in the technical, managerial and financial operations connected with the transportation industry, both in respect of electric railways and

steam railroads, to which specialty I have devoted practically my entire business life, I think I am qualified to judge of the personal qualifications of the Commissioners of the Port Authority as well as its technical staff, and on this account I am writing you this letter to give you as briefly as possible these qualifications which I trust you may see fit to publish in the *Railway Age*.

I should also like to call your attention to the fact that the Commissioners of the Port of New York Authority were appointed for the purpose of taking a comprehensive view of the existing freight terminal situation and means for its improvement and that their viewpoint cannot be restricted to regarding this merely as a railroad or steamship problem. They must take a broad business and politico-economic view of this question for the benefit of the general public, as after all the main desideratum is to reduce the cost of living and the cost of doing business not only in the port district and the two states involved, but also for the whole country, as New York is our one great national port. From this point of view, it would be a great mistake to have these six commissioners, ex-railroad executives.

The Port Authority has largely depended in forming its opinion on the railroad problems which it has encountered upon the information gathered by its technical staff which is composed of executives, engineers, accountants and clerks largely having railroad experience.

In addition, during the past five years, both the Port Authority and its predecessor, the New York, New Jersey Port & Harbor Development Commission and their technical staffs have had the benefit of almost continuous conferences with the engineers and operating officials, from low to high, of the railroads affected, which have resulted in the Port Authority's securing personal views of this large body of men which they individually might be reluctant to give public expression. I have investigated and would advise you that the particular qualifications of the commissioners and staff of the Port Authority with reference to railroad problems are as follows:

[The *Railway Age* regrets that space limitations are such that it is impossible to give in full the histories and qualifications of the entire list of men concerned and that it is necessary to confine it to the commissioners. The editorial in question referred, however, only to the commissioners. The names of the men forming the staff and the technical advisory staff are given.]

Commissioners of the Port of New York Authority

E. H. Outerbridge:—During the past 32 years a large manufacturer and shipper, with factory within the Port District. Member in 1907-1908 of the Walter Kerr Committee of the Merchants Association, dealing with the problem of the West Side of Manhattan. As chairman of Committee on Harbor and Shipping of the New York Chamber of Commerce, made the 1912 report on the Development of Waterfront Facilities, stated at that time by prominent bankers and publicists to be one of the most important ever presented. During 1912 prepared report on North River pier extension and six other reports on various phases of the port and terminal problem for the Chamber of Commerce. In 1913-1914 presented reports on the Jamaica Bay project, Buttermilk channel, Cape Cod canal, East River improvements and Port Facilities. In 1914 as chairman of the executive committee presented reports on Harbor Improvements, on Brooklyn Marginal Freight Railroad, Problems of Shipments During the War, and on East River Improvement. 1916-1918, president, New York Chamber of Commerce.

J. Spencer Smith:—In 1911-1914 member New Jersey Commission to investigate port conditions of New York and member New Jersey Harbor Commission. From 1915 to 1923 member of and president of Board of Commerce & Navigation of New Jersey. In 1917 was appointed by the War Department as chairman of Board of Appraisal of Bush Terminal and other property in and around New York.

De Witt Van Buskirk:—Since 1905 president, Mechanics Trust Company, Bayonne, N. J., and is president or vice-president of two other New Jersey banks. Vice-president, Pacific Coast Borax Company, and Tonopah and Tidewater Railroad Company. Has been president and had full charge of construction, etc., of other short line railroads. Member of original commission which reported upon the vehicular tunnel between New Jersey and New York which is now under construction. President, Bayonne Transportation Company, and identified with other lighterage companies doing business in this harbor. President of the Chamber of Commerce of Bayonne.

Lewis H. Pounds:—Publicist, real estate expert and appraiser, specializing in waterfront and terminal properties. 1910 to 1913, Commissioner of Public Works, Brooklyn. 1913 to 1917, president of the Borough of Brooklyn. During these eight years' service in the Board of Estimate and Apportionment, he was actively identified with the Port and Terminals Committee, having in hand the Manhattan West Side Railroad Problem, the upbuilding of Jamaica Bay, improved railroad facilities and the general program for the port's development. Director of Brooklyn Chamber of Commerce.

Messrs. Outerbridge, Smith, Van Buskirk and Ford served from 1917 to 1921 as members of the New York, New Jersey Port & Harbor Development Commission of which Messrs. William R. Wilcox, Arthur Curtis James and Murray Hulbert were also members. Messrs. Pounds and Alfred E. Smith have been members of the Port Authority, 1921 to 1923, the latter resigning to become governor of New York.

The Technical Staff

Julius Henry Cohen, general counsel; General George W. Goethals consulting engineer; B. F. Cresson, Jr., formerly chief engineer and now deceased; Wm. W. Drinker, terminal engineer; John E. Ramsey, chief statistician; H. C. Bixler, transportation engineer; Elihu C. Church, transportation engineer; Billings Wilson, assistant to chief engineer; James A. Jackson, electrical engineer.

The technical advisory board consisted of Francis Lee Stuart, Morris R. Sherrerd and Nelson P. Lewis.

From knowledge of the fitness of these men, I believe that there is no body of railroad executives or engineers in existence more competent than they to pass upon the practical features of the comprehensive plan for the Port of New York Authority.

FRANK R. FORD.

A Word to the Younger Railroad Men

BANGOR, Maine

TO THE EDITOR:

I am not writing this letter with the idea of placing the blame for the unsatisfactory conditions which exist nearly everywhere in the railroad world, but rather because of the evident seriousness of the present situation with regard to the attitude of the younger railroad man toward his work and employer. Perhaps this attitude may best be characterized as "lack of interest" with regard to the work, and "lack of respect and loyalty" as regards the relationship with the employer. I would not go so far as to call it ignorance, laziness, or insubordination—though these might apply in some individual cases—for there will always be those among us who, though not very capable, have somehow succeeded in getting a job and holding it; the great majority, however, are capable of doing good work, should they but set their hearts and minds upon it. To give a certain number of hours a day of labor, in a more or less thoughtless and mechanical fashion, is certainly far short of what most of us are capable of.

To develop the point, please consider these four questions: (1) Are we giving an honest day's work—by which is meant reasonably strict attention to business during the working hours? (2) How much do we know about the "why" of our jobs? (3) How well acquainted are we with any special rules or instructions governing our line of work? (4) How many books or periodicals treating of any phase of railroad work or conditions do we read?

The answers that we are able to make to these questions will be a pretty good indication in our own minds as to whether or not we have a real interest in our work. I very much doubt if the person who cannot give favorable answers to some of them at least, will ever reach the point at which he will become a very valuable man in any railroad organization.

Do not interpret this as being in advocacy of a system of unremitting toil and study which would prove the undoing of all but the strongest. On the other hand a healthy interest in the things connected with his occupation should certainly prompt any man to do a reasonable amount of reading and study which will prove a pleasure rather than a

duty and result in a wonderful broadening of the mental vision. We do not cultivate the habit of study nearly enough for our own good. Too much of our spare time is given over to pleasure, and too little to the development of those faculties necessary to success.

There is a most deplorable tendency at present to discredit those who have managed and are managing our railroads. They have made their mistakes, undoubtedly, just as those of us who may happen in future to hold their positions are bound to do. Railroad history tells us that there have been cases of deliberate fraud but, notwithstanding the accusations of gross mismanagement which are rife, the managements are singularly well qualified for their work, carried on generally in these days under great difficulties, and so are most certainly worthy of respect and loyalty. This tendency to criticize does not, to say the least, exert a healthy influence over railway morale, and those who so freely indulge in it should realize that fact. The young railroad man can generally afford to discount quite liberally any criticisms of his superiors which he may chance to hear.

There has recently arisen the sound of much mourning over the passing of the old-time morale and steady loyalty to duty which we are told formerly existed throughout the ranks of railroad labor. Who shall restore it, or even a semblance of it, if not the younger man who must gradually come up to the place of responsibility? The present railroad situation, with its difficulties, should be of great interest to all of us.

We should be anxious to see some plan adopted that will be of lasting benefit to all concerned and at the same time be more nearly permanent than anything that we have yet seen. Upon the younger railroad man of today lies much responsibility in the bringing of this to pass because, when he has been educated up to the point where he will be content only with giving the best possible service of which he is capable, then, and then only, will our railroads function in such a manner that they will be trusted to the extent of becoming more nearly self-regulatory.

Out of the present disheartening tangle there will sometime emerge the proper solution, and I have faith to believe that when that time shall appear, the worthy and efficient railroad employee will come into his own. W. A. R.

Modernizing the Water Supply

CHICAGO.

TO THE EDITOR:

Your editorial "Modernizing the Water Supply," in the issue of February 10, interested me greatly. No one can dispute the fact that many of our railroads seem to be satisfied if the water furnished is wet and in sufficient quantity to keep its locomotives going. When a new railroad is in process of actual construction the engineer of construction goes first to the lakes and ponds and then to the rivers, when these are available. He has no time to study the subject of water supply. Only in dire necessity does he resort to the digging or drilling of wells. The railroad is built and placed in operation and, in nine cases out of ten, its locomotives continue to take water from the original supplies until the enginemen protest.

Now, when an engineman refers to a certain water as bad, he sometimes unwittingly fools his superior officers, because the very water he calls bad is the one the boilermaker calls good, and vice-versa. To the engineman a bad water is one which foams so badly as to interfere with the operation of the engine. To those responsible for the boiler condition, a bad water is one which scales or corrodes the boiler metal, causing leaking and short flue life. Before, therefore, the railroad is old enough, or large enough, or wealthy enough to have a water engineer, those waters which are good frequently have been abandoned as bad and those waters which are really bad are the ones frequently being used.

As an example of this, the writer recalls an instance of a railroad 10 years old which was found using, at a division terminal, a water loaded with scale forming and corrosive impurities. On the side of a mountain, less than three-quarters of a mile from the roundhouse, was a hot spring with a large natural reservoir and heavy flow. This water contained only about six grains per gallon of foaming salts and no other objectionable matter. Better than that, since its temperature was almost up to the boiling point, it was a potential boiler washing plant and boiler water supply, plus a means of heating the roundhouse. This source had not been utilized because in construction days somebody had labeled it "bad."

After the water supply has been obtained, there is the distribution to consider. The problem of carrying the water from the source of natural supply to the locomotive tender tanks is said to be a simple one for anybody to solve. A cistern, a steam boiler and pump, a pipe and a tank with a down spout, installed, the busy officer thinks he has solved the problem and is glad to get it off his mind. But wait! That tank has a flat bottom and the water carries mud in suspension. It is pumped into the tank and there settles. Locomotives take water daily and nothing happens, but one day the water is so low in the flat bottomed tank that the last of it must be drained into the tender of the locomotive pulling the most important train of the system, perhaps. All of the settled mud goes into that one tender tank and the next day's report shows an engine failure.

Sometimes even the steel hopper tank does not protect the system from this trouble. The writer recalls an instance in this connection on one of the trunk line railways where the majority of the wayside tanks are of this type. At one or two stations trouble resulted from the delivery of mud to locomotives.

Investigation developed the fact that no officer had been charged with the responsibility of cleaning out these tanks and it was not known whether they ever had been cleaned. Yet these tanks could be cleaned currently by the simple process of removing a manhole plate near the bottom and letting the rush of water do the work.

C. H. Koyl, engineer of water service, Chicago, Milwaukee & St. Paul, in a recent paper published in the *Railway Age*, pointed out where one railroad had laid a pipe line over an entire division to distribute a satisfactory water. This was an exception. To the average railway executive or director such a proposition would be looked at askance. Yet, if this pipe line carries an exceptionally good water to five or six tanks which would otherwise have to be treated at considerable expense, the saving is immediate.

Water engineers can do fully as much for the service by applying themselves to the problem of locating the best waters and arranging for their distribution, as they can by treating poor supplies. In fact, it seems as if therein lies the greater opportunities. C. R. Knowles, superintendent of water service, Illinois Central, for instance, has shown that much can be accomplished by simply plugging leaks and stopping wastage. The figures he reports are astounding.

Finally, the opportunity in treating water should not be overlooked. So many opinions and discussions on methods of treating troublesome waters have appeared in the columns of the *Railway Age* within the past year that it seems useless to discuss them further here. Suffice it to say that treatment of some kind for bad waters, the use of which cannot be avoided, and the decision as to the method to be used should rest with some executive who is blessed with a lot of common sense. He can get his technical advice from the chemists. He must work out a practical plan. L. F. WILSON.

Vice-President, The Bird Archer Company.

Freight Yard at Tsinanfu, Shantung (now Kiao-Tsi) Railway

Shantung Railway Turned Over to Chinese

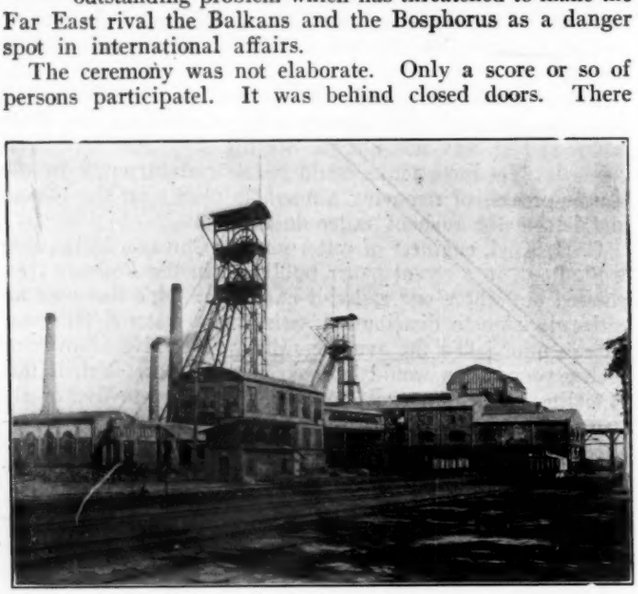
Japanese Personnel Relinquish Control—Chances for Success of New Regime

By Railway Age's Correspondent in China

TSING-TAU, SHANTUNG, CHINA.

AT NOON on January 1, the Shantung Railway became the Kiao-Tsi line, thereby solving, it is hoped, the outstanding problem which has threatened to make the Far East rival the Balkans and the Bosphorus as a danger spot in international affairs.

The ceremony was not elaborate. Only a score or so of persons participatel. It was behind closed doors. There was no salute of guns. In pursuance of the agreement arrived at during the Washington conference on disarmament and the negotiations growing out of it, the sub-committees appointed by the Chinese and Japanese to arrange the transfer of the railway exchanged signed documents in which it is agreed that from and after 12 noon January 1, 1923, the operations of the railway between Tsing-tau and Tsinanfu will be under the control of the Chinese government. All revenues accruing from and after 12.01 a. m. of January 1 will become the property of the Chinese government, but the transfer of treasury notes to the Japanese government in payment for the line will be deferred until the actual physical transfer of the property is made complete by the withdrawal of all of the Japanese employees not affirmatively retained by the Chinese administration, either voluntarily or in pursuance of the Washington agreement.



A Typical Shantung Colliery

All Japanese Employees to Be Replaced

As a matter of courtesy the present Japanese staff will remain on duty as the employees of the Chinese administration for the period of one month, so that the newly arrived Chinese employees may have an opportunity to become familiar with the nature of their duties, before being called upon to discharge them. Approximately two thousand Japanese have been employed on the Shantung Railway. All of the officers and their clerical staffs, all of the station masters and clerks, all of the conductors, brakemen and guards, about two-thirds of the engine crews, and a large number of mechanics and track foremen are Japanese. To replace all of these with Chinese without interruptions to the service and without incident requires delicate handling and nice adjustments.

Imagine a regiment of Japanese soldiers to be marching down a street. At an agreed intersection, the regiment is to be composed of Chinese soldiers, carrying the guns and knapsacks with which the Japanese are now equipped—and the line of march must continue without halt and all must keep step. This illustrates the problem which now confronts the railway administration. The difficulties are not made less by the feeling which has been engendered between the two peoples, and which—contrary to many reports—is more intense in the lower ranks than among well informed officers. There have been abundant examples of one nationality superseding another upon a railway as a result of war. But there are no precedents for one nationality superseding another to prevent war.

Sincerity of the Japanese

No one doubts the sincerity of the present Japanese railway officials. Those who are in charge of the Japanese side of the transfer command the confidence and respect of all who know them. They belong to the more liberal school of

Japanese thought which sees the greatest good to Japan in cultivating mutuality of interest with China rather than in conquest, or any form of political domination. At the same time there are many "die-hards" in the Japanese military faction. This element inadvertently showed its hand at the time the civil administration of Tsing-tau was turned over to China. The Chinese let it be known that they would have difficulty in arming their police. Negotiations were completed with the Japanese for a sale of arms. The Chinese

The Port of Tsin-Tau

were to take over the civil administration on December 1, but a few days before, the Japanese gave notice that they would be unable to make delivery of the arms until December 3. Very well, said the Chinese, we shall have to postpone our taking over until December 5. A few days later the Japanese emissary returned with the news that now it would be impossible to deliver the arms until December 8. Three different dates were set for the transfer, only to have the Japanese each time fix a date for the delivery of arms two days after the date of the transfer.

Meanwhile Japanese roughs were gathering in Tsing-tau. Chinese bandits encircled the city. They entered, captured members of the Chinese chamber of commerce gathered at a public banquet, and took them to the hills without molestation from the Japanese police who were still in charge of the city. But quietly, arms from Chinese sources were furnished the Chinese police, and although the Japanese arms were not delivered until two days after the Chinese assumed responsibility, the transfer on December 10 was marked by the utmost quiet. In fact, the streets are so deathly quiet up to the present that the appearance of a few squealing Chinese wheelbarrows has provoked a letter of protest to the local newspaper.

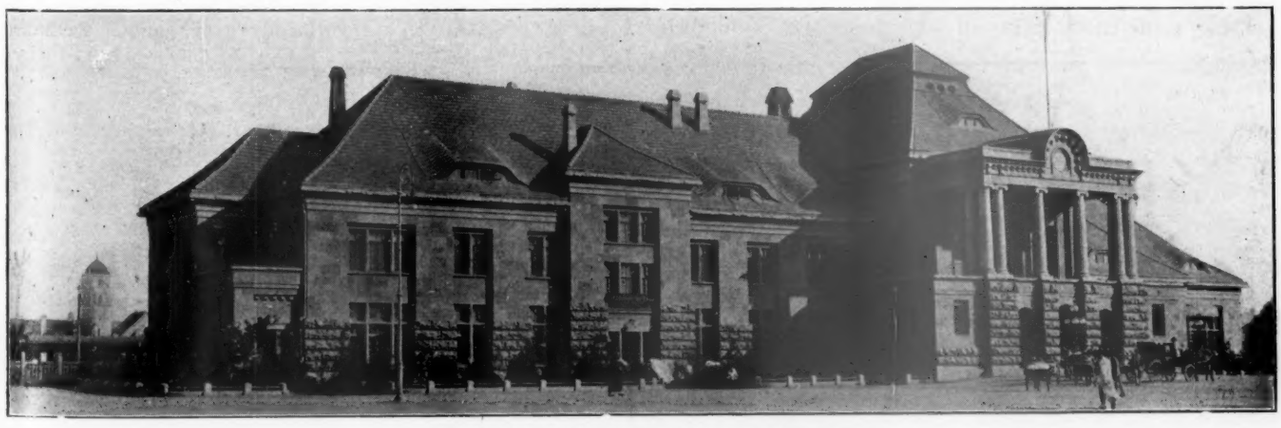
Trouble With Japanese Employees

Now, the rank and file of the Japanese railway forces on the Shantung Railway were placed there by the old military administration. Hence, in view of the background of events, the Chinese entrusted with the railway transfer have refused to pay over the treasury notes on January 1, the date of the formal transfer of the railway. Only when the actual transfer is completed will this be done. From the Japanese side there was only a *pro forma* objection to this procedure—that group being quick to see that such a bargain would strengthen their hands in holding malcontents of their own nationality in order. Something of the sort was necessary, for these men are sufficiently organized to have caused a strike which completely tied up the line on December 15-16, until a settlement was reached with their representatives regarding a retiring allowance.

Some Japanese Officers to Be Retained

By the terms of the Washington agreement, China is required to employ "a Japanese subject as traffic manager of the road and another Japanese subject as chief accountant jointly with a Chinese chief accountant with co-ordinate functions; these officials to be under the direction, control and supervision of the Chinese managing director of the road and to be removable for cause"—this to continue pending the redemption of the treasury notes. There are many friends of China who have feared that the presence of any Japanese subjects in official positions upon the Shantung Railway would jeopardize Chinese control. The continuance of any large number of Japanese employees might indeed give rise to such friction that under some circumstances the Japanese government might consider that the safety of its subjects required the landing of Japanese troops. Then the subject would have to be gone all over again.

But an additional understanding was recorded in the minutes at Washington to the effect that "the Chinese authorities are to have full power and discretion to continue or to remove the present employees of Japanese nationality" and further that there will be no claim "that China is under any obligation to appoint Japanese nationals as members of the subordinate staff of the Japanese traffic manager or of the Japanese chief accountant." Hence on the first of February, the anniversary of the Shantung agreement at Washington, all Japanese except the two officials just named and perhaps a score of file clerks and craftsmen whose services the Chinese are anxious to retain, were scheduled to sever their connection with the line.



Kiao-Tsi Railway Station at Tsinanfu

Others still fear the powers of these specifically named Japanese officers. In spite of the fact that they are removable for cause and are "under the direction, supervision and control" of the Chinese managing director of the line, many remember the words of Sir Charles Addis concerning the Consortium. He assured British manufacturers, that the international character of the Consortium would not limit British opportunity for markets, for, he explained, "If a Scotchman gets to be engineer-in-chief, the specifications somehow are always so drawn that works on the Clyde are the successful bidders." This is what has been feared of these Japanese officials—especially the traffic manager. It must be remembered that this officer is in charge of trains, stations, yards, warehouses and rates. The tricks which can be played with rate structures and service, especially if the chief accountant is "in the know" might give even the steel manufacturers on the Clyde something to envy, if there were no restriction upon these officers. Managing directors are usually appointed for political reasons, rather than for their knowledge of technical railroading, and it is quite conceivable that a well versed traffic manager could "slip something over" on an unsuspecting politician in the managing director's chair.

Checks Upon Japanese Traffic Manager

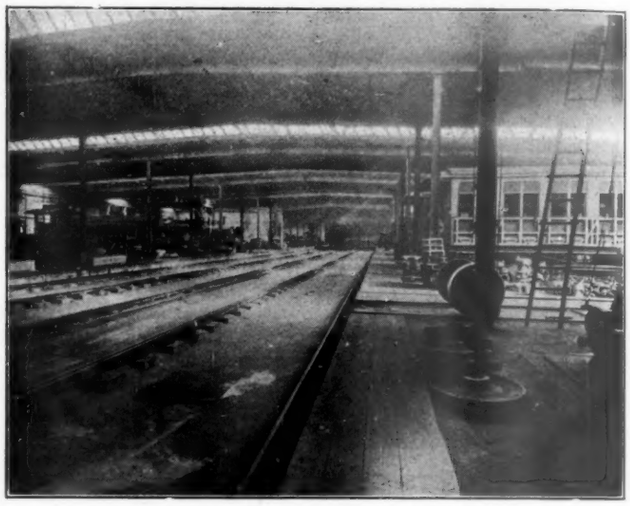
But the Chinese managing director has a great deal of assistance ready made. Take the case of the traffic manager. He will be required to sit in (1) the through traffic conference and (2) the general traffic conference of the Chinese Government Railways. These conferences act as a legislature which passes the laws governing the traffic department upon all the lines participating in them. The law comes into effect when approved by the Ministry of Communications. It is then administered by the traffic manager as the representative, under the managing director, of the Ministry of Communications. Thus this traffic manager will be subject to the control which comes from association with the technical representatives of other lines as well as the control of his own managing director. To escape this control he must either defy his colleagues in the conferences or deliberately disobey the Ministry of Communications and his managing director—in which case he is subject to removal.

These conferences have already prescribed a uniform classification for freight; uniform rules for the carriage of freight, passengers, baggage and parcels; uniform rules for the distribution of cars and for reporting of car performance, train and locomotive kilometrage. A similar condition will be found governing the chief accountant, who will be subject to the scrutiny of the Chinese chief accountant as well as of the managing director. The uniform classifications of accounts have been in force several years on the Chinese Goverment Railways. The conferences of the accountants have had eight years of successful history. Only a few subjects in the field of railway accounts have not been standardized, and these will be taken under consideration at an early date. Hence, it can be asserted with confidence, that if the Chinese officers entrusted with the fortunes of the line are permitted by their own people to use ordinary vigor, intelligence and integrity in handling the situation, the Shantung Railway will remain safely Chinese.

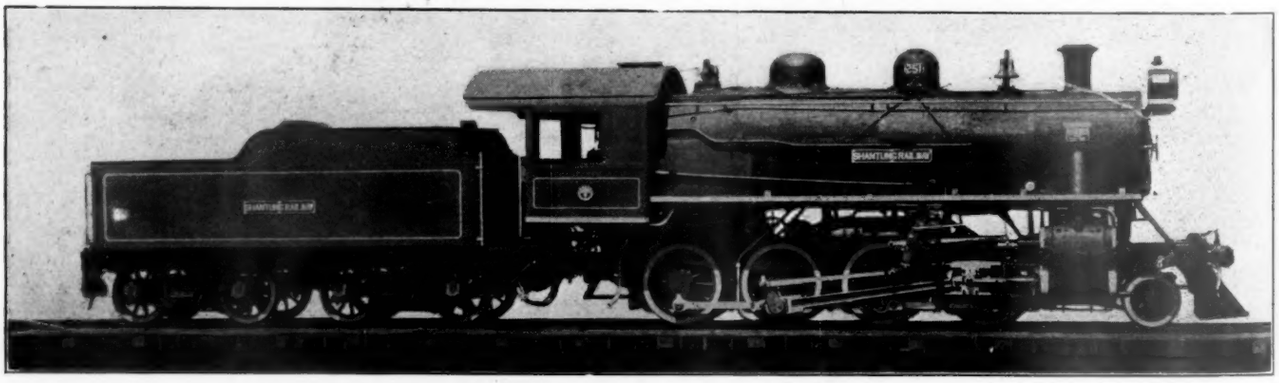
Price Paid for the Railway

By the terms of the Washington Agreement, China is required to pay Japan some 54,000,000 gold marks (about $13,500,000, which Japan allowed Germany on her indemnity) plus the cost of the permanent improvements made by Japan, subject however to deductions for depreciation and allowances for the principle of "continuing value." At current rates of exchange the value in Chinese currency of 54,000,000 gold marks would be about 27,000,000 Yuan dollars. The Japanese statement of improvement costs added up to about 27,000,000 yen. (Ordinarily a yen and a yuan are not far apart in value.) Upon examination it was found that the Japanese idea and the Chinese idea as to what constitutes permanent improvements were far apart. The Japanese list included additional brooms furnished janitors, an additional tin cup chained to a drinking fountain, new style fences when the old one was demolished and things of that sort.

The Chinese held out for the exclusion of everything in the nature of supplies as well as for all other expenditures for works costing less than $4,000 (Mex.) each. In the Chinese official classification of accounts, all such items are debited to "operating expenses." Then, too, there was the



General Shops, Tsing-tau



Built by the American Locomotive Company for the Shantung Railway

question of repairs to German locomotives severely damaged by the Germans before Tsing-tau surrendered. Did the 54,000,000 marks cover locomotives in running order or as the Japanese found them? Were the repairs a "permanent improvement" or an incident to operation? What value should be ascribed to barracks built by the Japanese on railroad land but of no service to the future railroad administration?

As a result of their inspection, the Chinese valuation committee recommended that Japan be allowed about 6,500,000 yen for permanent improvements, while the Japanese valuation group scaled the original statement to about 23,000,000 yen. At this point the "politicians" took over the negotiations, and agreed on a round figure of 40,000,000 yen (about $20,000,000) to cover everything—the fifty-four million gold marks and permanent improvements. The treasury notes representing this amount are to bear interest at the rate of 6 per cent per annum.

A Typical Small Station

Physical Characteristics of the Line

What sort of a railway does China receive in exchange for these 40,000,000 yen? It is a standard gage line, 270 miles in length—including 25 miles of branches. This makes an average cost of something over 92,000 yen per kilometer (or about $76,000 per mile) of line. The average cost of the Chinese government railways is about $85,000 (Mex.) per kilometer of line. The Tientsin-Pukow, with which the Shantung Railway connects, cost $95,000 (Mex.) per kilometer, but the Peking-Hankow cost only $82,000 (Mex.). The Shantung Railway was not expensively built. The economy with which the Germans built the Shantung Railway in comparison with that displayed by them on the northern section of the Tientsin-Pukow is marked.

The Shantung line passes over easy country requiring few cuts and only moderate embankment. Steel ties were used throughout, but the Japanese replaced a few of these with wood. Rail is of only 60-lb. section, but is said to be of a special German composition which gives it much the same strength as ordinary 75-lb. section. Bridges are of light construction and unable to carry loads beyond Cooper E-35. Station buildings are adequate for the most part, but except for that at Tsinanfu are not particularly impressive. It has some thriving timber plantations alongside the track, which have not been molested by the natives—a high contrast to most of the other railways in China.

Rolling stock is plentiful but of light construction and low capacity. Of locomotives there are 30 of the 10-wheel general purpose type, 26 Consolidations purchased by the Japanese from American builders and 23 switching locomotives of varied types. Freight cars are all of the two-axle type, most of them being either 15 or 30 tons' capacity. More than half of the total are for the coal business of the line. Of passenger equipment, 73 out of 120 cars are for third-class travel. Compared with the Tientsin-Pukow and several other of the Chinese government lines, this supply of rolling stock seems to be fully adequate, but compared with the average government lines $92,000 (Mex.) per kilometer does not make the Shantung Railway a bargain. However, considering that the Japanese built their improvements at war prices, they are probably not getting much more than their money back, and it is a certainty that the Shantung Railway could not be reproduced today for $40,000,000 (Mex.) Judged by that basis the Chinese undoubtedly have done well.

Bridges on the Kiao-Tsi (Formerly Shantung) Railway Are Light

A Good Earner

The Shantung Railway—or Kiao-Tsi line as it is to be called—from another standpoint is distinctly a bargain. It is a going concern with a well developed traffic earning nearly $16,000 per mile of line. The government railways, after they had been built, in the majority of instances were forced to go through several years of deficits. If those deficits were to be added to the cost of the line, as actual financing requires, their costs would be much higher, as a rule, than that of the Kiao-Tsi line. The annual revenues of this line

have approximated over 8,000,000 yen (i.e. $4,000,000) during the past two or three years. The Japanese have doubled the revenues during their eight years of operation. However it is understood that Japanese expenses increased to such an extent that their net revenues were very little, if any, higher than were the German profits. The German operating ratio in 1913 is said to have been 27, while the Japanese ratio in 1921 is said to have been about 75.

The Chinese expect to be able to arrive at a happy medium around 50. If they are able to do as well on the Kiao-Tsi line as in happier years they did on the Peking-Hankow and the Peking-Mukden lines, they will be able to do better than 40. At 50, however, assuming revenues to approximate $4,000,000, net revenues of $2,000,000 will represent a 10 per cent return on the property. As the interest rate is only 6 per cent, this margin of 4 per cent means a very handsome profit. It means about $800,000 to be set aside the first year for additions to the property or toward the repayment of the treasury notes.

If the Chinese administration could apply the whole $800,000 of the profit, remaining above interest requirements, toward the redemption of the treasury notes, the 15-year term which these have to run would be rather short for the redemption to be made out of purely railway revenues. To be sure, the revenues may be expected to increase. But increasing revenues demands increasing investment in the property, which under present conditions must be made out of revenues. To redeem the line out of funds earned by the railway alone, the Chinese administration will be forced to achieve something better than an operating ratio of 50 and will have to increase the revenues besides. However, if the management gives an exhibition of good management and satisfactory service, it will not be difficult to secure additional funds from other Chinese sources to complete the redemption in case the railway's own funds should be inadequate at the end of the 15 years. In fact a movement is under way right now to secure the funds in time to complete the redemption at the end of five years, as permitted by the Washington Agreement.

Rates May Be Reduced

It is not at all impossible that the Chinese administration will revise the rate schedule in such a way as to reduce operating revenues rather than to increase them. The Japanese administration manifested a high degree of ingenuity in framing the rate structure so as to further Japanese nationalistic aims. It will be remembered that Tsing-tau is on the tip of a promontory and that the bay of Kiao-chow projects some 40 miles westward. Formerly a brisk trade by small vessels originated at ports along the bay which could not serve ocean steamers. Under the Japanese administration all of this traffic has been destroyed. The rate on a 15-ton car of coal dust from Tsechuan, say to Tsing-tau was $45, but to one of these ports some 45 miles nearer the coal mine it was $67.50. In other words, there was a 50 per cent differential against the shorter haul. A similar discrimination applied to peanuts and cotton, two of the principal exports. In addition, there was a provision which gave a rebate of 50 per cent of the freight rates on articles of export to Japan, whereas articles with a domestic destination had to pay full rates. Naturally, this system built up the port of Tsing-tau and it produced long haul business for the railway. It explains in part the large increase in operating revenues and the increase in the operating ratio during the same period. But to the people of Shantung the Japanese interest in export trade is a secondary matter and Tsing-tau is only one port among many. It is quite conceivable that the people of Shantung will demand a restoration of the old German tariffs, and as a result, gross revenues instead of increasing may decrease during the first few years of the Chinese administration. If they do, and for this reason, no particular fault should be found with a management which has considered the public interest as being co-ordinate with the interest of the railway.

Protecting the Treasury from Militarists

By eliminating long hauls at low rates and the export rebates it may be possible to maintain net revenues at a figure close to $2,000,000 per annum even though gross revenues decrease to something like $3,000,000 during the first few years. Hence the question of paramount interest is on the point as to how these *net* revenues are to be protected from the ever greedy hand of the Chinese militarists. The government has taken thought there-unto and has erected a buffer between the railway management and the Ministry of Communications, in the effort to protect the railway against frequent changes in management but, more particularly, to remove the railway treasury from the immediate control of Peking.

The managing director and his subordinate staff are to receive their appointments, not from the Ministry of Communications, but from a commission to be composed of two prominent citizens of the province of Shantung, two representatives of the Ministry of Communications, and one prominent citizen of the country at large. The latter at present is the Hon. C. T. Wang, who has been in charge of the entire Shantung rehabilitation. These commissioners are to name the banks which are to act as depositories for the funds of the railway, and must approve all payments, either by passing on a budget estimate or by giving special sanction. If this form of control, backed as it is by public opinion demanding the complete restoration of Chinese control in Shantung, is not sufficient to protect this railway from militaristic raids upon its treasury, then indeed will the situation in China be proved hopeless, and the world will not much care if Japan or any other nation able to maintain order and promote progress should again enter Shantung and assert its power.

Most of the Chinese personnel of the railway administration feel that more is at stake than merely Shantung. They evidence a belief that failure would mean disaster for the whole program of government, while success would not only give hope and confidence generally, but might have a specific effect upon the treatment accorded other sections of China within which other nations claim special interests. To put it bluntly, the Kiao-Tsi Railway Administration hopes to be able to demonstrate to the satisfaction of Japan that it would pay Japan to return the South Manchurian railway to China on terms similar to those which have been put into effect in Shantung. It is too early to say whether the enthusiasm for this purpose will be able to withstand the persistent and insistent attacks which personal and partisan politics even now are making upon the morale of the new organization.

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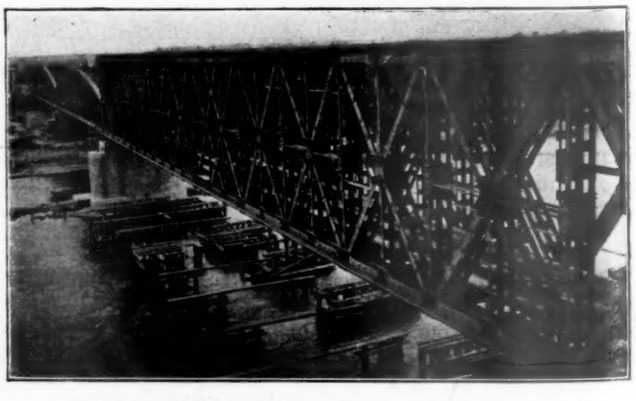


A Railway Bridge Under Construction in Roumania

The Traffic Unit in Operating Statistics Analysis

Inconsistencies and Fallacies in Its Use Practically Nullify Its Value—Four Roads Compared

By Analyst

AMONG the ever increasing number of statistics of railroad operation, the traffic unit, or as it is sometimes called, the equivalent ton-mile, seems to be gaining in favor. It is being used by some railroad men, by financial journals and occasionally, though guardedly, by the Interstate Commerce Commission. It has its attractions, because it is assumed that by means of it railway operations as a whole can be analyzed without the troublesome problem of separating passenger and freight statistics.

The traffic unit, or equivalent ton-mile, is a combination of ton-miles and passenger-miles by which one of these, usually passenger-miles, is restated in terms of the other on the basis of some equation factor. The passenger-miles, if they are to be equated, are multiplied by some factor, usually between one and three, and the result added to the ton-miles. The total represents equivalent ton-miles or traffic units.

The traffic unit came into being because of the difficulty constantly experienced in showing any unit costs based on all revenues and all expenses—passenger and freight. Through the traffic unit it was thought that the distortion brought about by passenger business could be eliminated. It is being used today extensively, (1) to compare unit operating costs on the same railroad for different periods and for different railroads for the same period; (2) to compare general operating results—freight and passenger combined—on a unit basis, and (3) to compare the growth in traffic as a whole with the growth of facilities, capitalization, property investment, etc. It is the purpose of this article to check the results obtained by the use of this unit with the results obtained from a separation of freight and passenger expenses and revenues and to point out the inconsistencies and fallacies which appear.

In the various figures which are here given as examples, use has been made of the statistics of four railroads. The first of these is a line with heavy and relatively profitable passenger business. The second is a line which has less passenger business than the first line, and yet an appreciable amount. The third line has a relatively small and unprofitable passenger business. The fourth line has a condition which is midway between that on the second and third lines. All of the statistics used are based on actual operation on railroads with varying conditions. The results, therefore, can be taken as indicative of the results of any series of railroads with varying operating conditions.

On the Basis of Revenues

The first problem which arises in connection with the traffic unit is that of the basis of equating ton-miles and passenger-miles. These have nothing in common. Therefore, they can be stated on a common basis, only in accordance with the relative effect of each on operating revenues or expenses. Since the revenues per passenger-mile and per ton-mile are much more accessible than the expenses per ton-mile and per passenger-mile, the basis of equation is usually the relationship of ton-mile and passenger-mile revenues. If this relationship is analyzed, however, it will be found that it is not a fixed or standardized ratio, but a varying one.

	Railroad A	Railroad B	Railroad C	Railroad D
1916	125	342	220	290
1917	131	330	213	298
1918	125	300	205	299
1919	142	287	179	291
1920	123	257	170	291

The table in the first column shows the percentage of the revenue per passenger-mile to the revenue per ton-mile for the four lines for the years 1916 to 1920.

This table presents some curious factors. Even as far as the comparison of the results on the same railroad are concerned, there is no consistency. On two railroads the relationship holds remarkably close during the five-year period. One of these two lines handles a large passenger business, while the other handles comparatively little. On the other two lines there is a constantly diminishing spread between ton-mile and passenger-mile earnings. On the same railroad, therefore, one cannot use the same basis of equation from year to year and be certain that the results will be consistent. For railroad *B* the passenger-miles would have to be multiplied by 3½ in the year 1916 and by 2½ in 1920. The change on railroad *C* would be from 2¼ to 1¾. On the other hand, the basis on railroad *A* would be 1¼ to 1 throughout the five years, and on railroad *D*, 3 to 1.

These inconsistencies also are troublesome as between railroads. The factor which is proper for railroad *A* is absurdly low for railroad *D*. In no single year could the same factor be used for two railroads except in 1918 when *B* and *D* could use the basis of 3 to 1. If railways are to be compared, therefore, the same basis of equating cannot be used. This produces the inconsistency of having different bases of equation on different railroads, with the further absurdity of having different bases for the same railroad if more than one year's figures are involved.

Relation of Revenues and Expenses

Not only are there inconsistencies as between the relationship of ton-mile and passenger-mile revenues, but an equation factor set up on the basis of relationship of ton-mile and passenger-mile revenues frequently does not express the difference between ton-mile and passenger-mile expenses. The traffic unit is used primarily to obtain unit costs of expenses and the equation is set up on the basis of the difference in the unit revenues on account of the fact that the unit expenses may not be available. Obviously, however, if the equation is made on the basis of the difference between ton-mile and passenger-mile revenues and this relationship is quite different from that of the ton-mile and passenger-mile expenses, any unit costs based upon the equation factor derived from unit revenues should not be used to check expenses. If we compare the actual differences of ton-mile and passenger-mile expenses and ton-mile and passenger-mile earnings on the same railroad and on different railroads, we will find a wide variation. The table below shows the percentages of the revenue per passenger-mile to the revenue per ton-mile and the percentages of the expenses per passenger-mile to the expenses per ton-mile on the same railroads in the same year.

Railroad	Percentage of revenue per pass. mile to revenue per ton mile	Percentage of expenses per pass. mile to expenses per ton mile
A	123	118
B	257	260
C	170	246
D	291	423

In this case it will be noted that traffic units made up on the basis of an equation factor based on the percentages of

passenger-mile revenues to ton-mile revenues would be correct as applied against the expenses in the cases of railroads *A* and *B*, but they would be very far from correct in the cases of railroads *C* and *D*. Furthermore, as between railroads, there is a spread from 118 per cent in the case of railroad *A* to 423 per cent in the case of railroad *D*. In other words, in the case of railroad *A*, the passenger-miles should be multiplied by 1¼ while in the case of railroad *D* they should be multiplied by 4¼, if the passenger-miles on the respective roads are to be equated with the ton-miles.

Attempt to Equate Met With Difficulties

It is very clear at the start, therefore, that any attempt to equate correctly passenger-miles and ton-miles is met with great difficulties. There is no definite basis for equating the two. While on some railroads the relationship between the ton-mile revenues and passenger-mile revenues is about the same as that between the ton-mile expenses and the passenger-mile expenses, on other roads there is no such close relationship. There are wide differences in the relationship of the ton-mile and passenger-mile revenues as between different roads and on the same road in different years. It would appear necessary, therefore, if we are to use the traffic unit that we should have knowledge both as to relative ton-mile and passenger-mile earnings and the relative ton-mile and passenger-mile expenses.

The previous argument has to do with using the traffic unit in considering operating expenses as a whole, but the traffic unit is also used in obtaining unit costs of various classes of operating expenses such as general accounts and even subdivisions of general accounts. We occasionally see comparisons of the results on different railroads as to the station expenses, yard expenses and train expenses per 1,000 traffic units. It is a well known fact to all railroad men that the effect of passenger service on different classes of operating expenses varies widely. Yet, in the use of the traffic unit the same weight is given to passenger service throughout. Taking as a sample a typical road on which the ton-miles amount to 4,600,000,000 and the passenger-miles 650,000,000, and assuming for purposes of illustration that the equation factor in this case is three to one, 70 per cent of the traffic units represent freight traffic and 30 per cent passenger traffic. The actual division of operating expenses between passenger and freight on this road shows a spread from 66 per cent to 93 per cent in these percentages. If we choose a railroad in which the passenger traffic is heavier, the variation will be even greater than this. For example, on a road in which the passenger miles are about two-thirds of the ton-miles, the percentage of the traffic units chargeable to freight would be 33 per cent if the equation factor was three to one, yet the percentages of expenses actually chargeable to freight vary from 38 per cent to 86 per cent.

From these facts it would appear that the traffic unit based upon equation factors derived from the spread between ton-mile and passenger-mile earnings will not be proper to apply against expenses as a whole nor against various sub-divisions of the expense.

The actual practice is to take one equation factor for each road to apply against all revenues and all expenses and subdivisions thereof and frequently to use the equation factor of three to one to apply against any road and any group of revenues or expenses.

Inconsistencies Which Develop

In order to show the inconsistencies which develop through the use of the traffic unit, comparisons have been made in the various groups of expenses between the actual ton-mile costs and the equated ton-mile costs on different railroads. Here, as before, the percentages are based upon actual unit costs upon four typical railroads. The first column in each table shows the ton-mile cost based upon a division of the actual freight expenses by the ton-miles. The second column shows the quotient derived by dividing the total of the expenses by the traffic units, in which the equation factor is made on the basis of one passenger-mile equalling three ton-miles. The third column shows the quotient derived by dividing the total expenses by the traffic units where the equation factor is different for each railroad and is based upon the relationship of the ton-mile and passenger-mile revenues for that road in that year.

	Freight expenses per 1,000 ton miles	Total expenses per 1,000 traffic units (Basis No. 1)	Total expenses per 1,000 traffic units (Basis No. 2)
Maintenance of way—			
Railroad A	$2.66	$2.07	$3.40
B	2.67	2.40	3.18
C	1.56	1.57	1.73
D	1.17	1.29	1.24
Maintenance of equipment—			
Railroad A	6.22	3.26	5.38
B	3.70	2.94	3.89
C	3.27	2.89	3.30
D	4.20	4.18	4.18
Transportation—			
Railroad A	10.98	6.51	10.74
B	8.83	7.58	10.00
C	5.61	5.28	6.03
D	4.89	5.20	5.20
Station expenses—			
Railroad A	2.40	1.11	1.84
B	1.58	1.36	1.80
C	1.02	.92	1.06
D	.79	.77	.77
Yard expenses—			
Railroad A	2.54	.96	1.57
B	2.04	1.22	1.61
C	1.25	.95	1.08
D	1.02	.94	.94
Train expenses—			
Railroad A	3.47	2.94	4.85
B	3.74	3.76	4.97
C	2.28	2.41	2.76
D	2.14	2.54	2.54

A survey of this table indicates first, that if it is the purpose to obtain from the total operating expenses and the traffic units unit costs which will approximate the freight expenses per ton-mile, the traffic unit based upon the relationship of three to one is in almost no case correct. The table clearly shows that a traffic unit based upon an equation factor for each railroad will produce results which correspond much more closely with the actual ton-mile expenses, but even in this case it will be noted that the variations between the actual expenses per ton-mile and the expenses per traffic unit based upon the second method produce widely different results, especially on railroads *A* and *B*, and in the case of all the lines, produce results far from the actual in the case of certain of the groups of expenses. The table indicates that the traffic unit as a measure of obtaining unit costs which will approximate the freight unit costs is in no way to be depended upon.

Four Roads Compared

Although the unit costs based upon traffic units do not produce results approximating the actual costs per ton-mile, it may be claimed that the relationship of costs on different roads based on the traffic unit will be the same as the relationship of the costs of the same groups of expense based on actual freight expenses and ton-miles. The series of tables given below compares the percentage relationship of unit costs on the same four roads, using the same unit costs which appear in the table given above. The first table compares railroad *A* and railroad *C*, showing for each group of expenses, (1) the percentage of the ton-mile costs on railroad *A* to those on railroad *C*; (2), the percentage of the traffic unit costs of railroad *A* to railroad *C*, the traffic units being based on a factor of one passenger-mile to three ton-miles, and, (3) the percentage of the traffic unit costs based on differing equation factors on each road as described above:

	Percentage relationship based on ton mile costs	Percentage relationship based on traffic unit (Basis No. 1)	Percentage relationship based on traffic unit (Basis No. 2)
Maintenance of way	170	132	196
Maintenance of equipment	190	113	162
Transportation	196	123	178
Station expenses	235	120	174
Yard expenses	203	101	145
Train expenses	152	122	176

The first column shows the true relationship as between the two railroads. In this case the relationship as shown by the traffic unit, however equated, is widely different from the actual relationship shown by the relative ton-mile costs. This applies to all groups of expenses.

The second table shows the relationship of the unit costs on the same three bases for railroads *C* and *D*.

	Percentage relationship based on ton mile costs	Percentage relationship based on traffic unit (Basis No. 1)	Percentage relationship based on traffic unit (Basis No.2)
Maintenance of Way	133	122	134
Maintenance of equipment...	78	69	79
Transportation expenses.....	115	101	116
Station expenses.....	129	119	138
Yard expenses.....	122	101	115
Train expenses.....	106	95	109

This table based on the cost of railroads whose characteristics are more nearly alike than those of the other lines compared shows results favorable to the traffic unit. The percentages based upon the second traffic unit are very close to the percentages based upon actual ton-mile costs. But while some of the percentages are low, others are high. There is no general standard relationship. The percentages based on the first traffic unit, while closer than those on the other tables, differ from 10 per cent to 20 per cent from the actual ton-mile cost percentages.

The last table shows the same results for railroads *A* and *B*. These two railroads also have operating conditions somewhat similar but the table in this case shows the percentage relationship of the traffic unit costs again far wide of the true relationship.

	Percentage relationship basis on ton mile costs	Percentage relationship based on traffic unit (Basis No. 1)	Percentage relationship based on traffic unit (Basis No.2)
Maintenance of way.....	100	86	107
Maintenance of equipment...	168	111	138
Transportation expenses.....	124	86	107
Station expense.....	152	82	102
Yard expense.....	125	79	98
Train expense.....	93	78	98

In this table the relationship shown by the first traffic unit is in all but one case the reverse of the facts. It shows railroad *A* with lower costs than railroad *B*, while actually its costs are much higher. Moreover, while the percentages based on the second traffic unit are not as absurd, they are from 6 per cent to 36 per cent wrong. Moreover, in the case of yard expenses, it also shows a condition the reverse of the real one.

Traffic Unit Unreliable

From these tables it appears evident that the traffic unit is a very unreliable statistic. While unit costs based upon it are sometimes very close to the actual ton-mile costs, they are frequently very different. Moreover, while the relationship of costs based upon the traffic unit are sometimes almost the same as the variation shown by ton-mile costs, at other times the traffic unit costs show a relationship exactly the opposite of the true ones. Lastly, the tables show clearly that traffic units based on a fixed equation factor of three ton-miles to one passenger-mile (the one most frequently used) cannot be relied upon to show either correct unit costs or correct relationship between unit costs.

The traffic unit is also used at times to show total revenues and expenses on a unit basis on different roads. The relationship of unit revenues and expenses (based upon the traffic unit) is used to show what the *ton-mile* revenues and expenses of freight traffic would be if these were available.

The table in the second column shows the ton-mile revenues and expenses of the same four railroads together with unit revenues and expenses based upon the second traffic unit (namely, based upon an equation factor for each railroad, the equation factor representing the relationship of ton-mile and passenger-mile revenue for that railroad for that year).

If the freight results on these four lines were to be judged from the traffic unit costs, it would appear that the profitableness of freight business of railroads *A*, *B* and *D* were about the same, with railroad *B* having the highest ratio. Yet on the basis of the actual ton-mile revenues and expenses, the freight service of railroad *A* is far more unprofitable than that of railroad *B*, a condition exactly contrary to the results shown by the traffic unit costs. Moreover, on the basis of the traffic unit costs, there is but little difference in the

	Based upon actual ton miles, freight revenues and expenses	Based upon traffic units and all revenues and expenses
Railroad A—		
Revenue per ton mile.....	2.048 cents	2.283 cents
Expense per ton mile.....	2.094 cents	2.087 cents
Operating ratio.....	102.2 per cent	91.4 per cent
Railroad B—		
Revenue per ton mile.....	1.783 cents	1.786 cents
Expense per ton mile.....	1.672 cents	1.706 cents
Operating ratio.....	93.8 per cent	95.4 per cent
Railroad C—		
Revenue per ton mile.....	1.475 cents	1.489 cents
Expense per ton mile.....	1.098 cents	1.176 cents
Operating ratio.....	74.6 per cent	79.0 per cent
Railroad D—		
Revenue per ton mile.....	1.244 cents	1.250 cents
Expense per ton mile.....	1.072 cents	1.121 cents
Operating ratio.....	86.3 per cent	89.6 per cent

results of railroad *A* and *D*. Yet, the spread between the actual freight ratios is 16 points. On the other hand, the relationship shown by the traffic unit figures as between railroad *B* and *D* is correct, and between *C* and *D* approximately correct.

Here again we find that the traffic unit may show proper unit costs and relationship of such costs, but frequently produces results diametrically opposite from the true facts.

Conclusions

The conclusions which are reached from the foregoing comparisons are as follows:

1. That in equating passenger miles and ton miles, the arbitrary basis of one passenger-mile equalling 3 ton-miles should not be used unless it is found that this represents the actual difference between the relative ton-mile and passenger-mile revenues and expenses.
2. That the traffic unit based on any equation factor cannot be used with assurance that the results obtained will be correct.
3. That the unit costs based upon the traffic unit cannot be accepted as indicative of the freight unit costs for the same expenses except under certain conditions.
4. That unit costs based upon the traffic unit cannot be accepted as indicative of the relative freight unit costs except in certain instances.
5. That unit costs of total revenues and total expenses based upon the traffic unit cannot be accepted as indicative of the units of freight revenue and expenses unless information is available as to the relative profitableness of freight and passenger service.

The question will naturally arise as to when the traffic unit can be used with any degree of assurance. It is undoubtedly better to avoid its use altogether, but the statistics have shown that in some cases the unit costs both actually and relatively do correspond closely to the freight unit costs.

When the relationship between ton-mile and passenger-mile revenues and ton-mile and passenger-mile expenses remains about the same, the traffic unit will produce unit costs of total revenues and total expenses which are reasonably accurate. If the situation on several railways is being compared and the relative amount of freight and passenger service is the same on these lines and the relative profitableness of freight and passenger service is about the same on these lines, the traffic unit will produce results reasonably accurate. This is true when expenses are taken as a whole, but no traffic unit based upon one method of equation will produce accurate results covering all of the various groups of expenses. It will be noted that particular stress is laid upon the necessity of knowing the relative profitableness of freight and passenger service. This is particularly important as evidenced by the comparison of ton-mile revenues, expenses and operating ratios of the four railroads based upon the separation of freight and passenger revenues and expenses and that based upon traffic units.

On the other hand, if information is available separating

freight and passenger expenses and revenue, there is no reason for using the traffic unit. It is far better to compare the actual results of freight and passenger service separately and to obtain costs therefrom which are based upon a closer approximation of the facts than to use the unreliable traffic unit which may produce results contrary to the facts. In short, the only time when it is absolutely safe to use the traffic unit is when sufficient information is available for checking its accuracy as to render the use of the traffic unit unnecessary.

I. C. C. Finds Fuel Shortage Exaggerated

WASHINGTON, D. C.

CHAIRMAN MEYER of the Interstate Commerce Commission reported to the President on Tuesday, following a meeting of the Cabinet at which the coal shortage situation in northern New York and New England was discussed, that the commission had made an extensive investigation by hearings and through its agents and that every case of distress reported to it had been speedily relieved without the issuance of any formal priority orders. The President was informed, it was stated at the White House, that the seriousness of the situation had been overstated as the result of local hysteria and that it had resulted to a considerable extent from the unwillingness of the communities to accept bituminous coal as a substitute for anthracite. Port Jervis, N. Y., had been offered a trainload of bituminous but had "rejected it with contempt." Chairman Meyer said that the commission would make every effort to relieve any emergency which should be reported to it and in several instances it had arranged with the carriers for the shipment of cars of coal in passenger trains.

The President appeared satisfied that the commission was doing everything it could reasonably be expected to do and that any shortage of anthracite which has been experienced was only what was inevitable in view of the long cessation of production during the coal strike.

A demand for an embargo on shipments of anthracite coal to Canada was made by representatives of the state of New York and the state fuel administration at a hearing before Commissioners Campbell and Cox of the Interstate Commerce Commission on February 19 in the commission's investigation of the distribution and transportation of anthracite. President Harding had previously declined to order such an embargo and the commission prior to the hearing had declined to issue priority orders, although urged to do so by Federal Fuel Distributor Wadleigh. Mr. Wadleigh had issued a statement saying the present problem of supplying coal to those districts is solely one of transportation and that he had urged that it be given priority over movement of all other commodities except foodstuffs and over movement of coal to Canada. The commission took the position that such orders were not yet necessary but had urged the railroads to provide the necessary movement without orders. A telegram sent by Chairman Meyer to L. F. Loree, president of the Delaware & Hudson, on February 16 was read at the hearing, in which Mr. Meyer said that priority orders might retard movement but urged that the railroad make every effort to meet the emergency. It was stated that the commission would temporarily withhold an order, but would issue one if the railroad thought it necessary. Mr. Loree replied on February 17 that the outstanding difficulty was the extreme winter weather which had delayed movement but that all anthracite coal shipped on the 16th had been billed to local stations on the D. & H. and that the same plan would be followed on the next day. Eight hundred and seventy-three cars of coal were en route to northern New York on the 17th, Mr. Loree said, and Saturday and Sunday would be devoted to digging out the snowed-in and set-out cars. He was glad the commission had not issued any order.

Superintendent McNeely, of the Delaware & Hudson, described the conditions on that line, saying that the chief difficulty was the unusually severe weather of the last few weeks, which had required the setting out of many cars. He said that the condition of the power was relatively good in spite of the strike and that since Friday the entire facilities of the road had been devoted to moving the coal to northern New York. He said the first intimation the railroad had received of an emergency was on February 2 and that preferred attention had even been given to anthracite since that time. He said that letters which the representatives of the New York fuel administration said had been sent to the Hudson Coal Company as early as January, giving lists of places where there was a shortage of coal had not been brought to his attention.

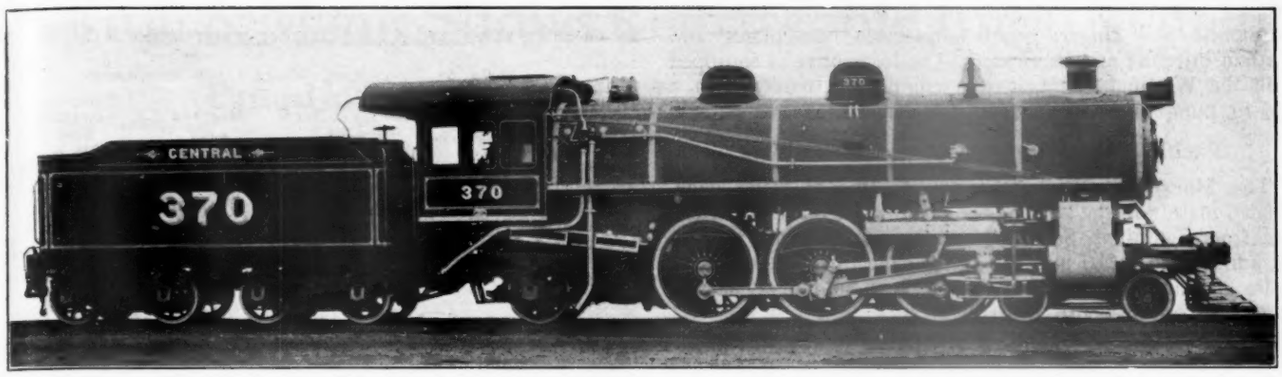
A statement was filed with the commission on behalf of the Hudson Coal Company giving information which it had previously declined to furnish to the federal fuel distributor regarding the destination of its shipments. H. T. Newcomb, who appeared as counsel, said that the railroad had furnished information regarding its movement of coal but that the Hudson Coal Company, whose stock is owned by the D. & H., had refused the information regarding the details of particular shipments because it had had unfortunate experience in doing so before. The information would have helped no one to coal, he said, and 50 per cent of its shipments did not move over the D. & H. at all. Mr. McNeely said he did not know how much coal his road had moved to Canada this season.

E. G. Griffin, deputy attorney general of New York, also asked the commission to declare all anthracite shipments now blocked along the line of the D. & H. to be outside of interstate commerce, so that the state authorities could control them. Before the conclusion of the hearing on February 20 telegrams had been received by the commission indicating that the situation had been materially improved.

A representative of the New River coal operators appeared at the hearing and said that they were seeking a market for bituminous coal and that if any part of New York or New England was in need of fuel it could be obtained.

P & A

American Troops Entraining to Leave the Rhine

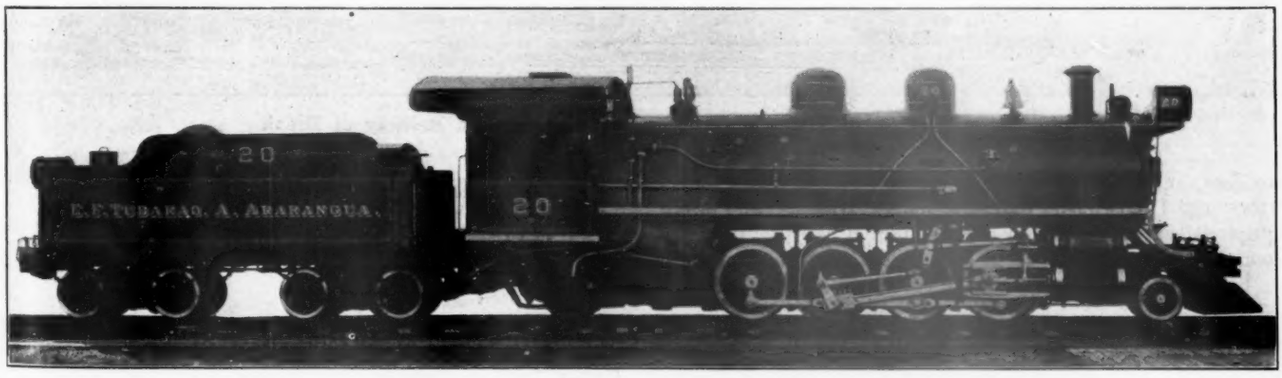


Broad Gage Pacific Type Locomotive for the Central Railway of Brazil

Locomotives for Brazilian Centennial Exhibition

American Locomotive Company Is Displaying Three Locomotives—Two Pacifics and a Mikado

MANY OF THE RAILROADS in Brazil have for a number of years purchased a considerable number of new locomotives from American builders. In 1922 Brazilian railroads ordered 21 locomotives in the United States, in 1921 35 locomotives, in 1920 26 locomotives, and in 1919 30 locomotives. It was therefore fitting that three samples of the locomotives designed and constructed by the American Locomotive Company on recent orders from that country were selected for display at the Centennial Exhibition at Rio de Janeiro. One of these locomotives is a Pacific type for the broad gage of Central of Brazil. The other two are of meter gage—a Pacific type locomotive for the Mogyana Railway and a Mikado type locomotive for the Tubarao a Ararangua.



Meter Gage Mikado Type Locomotive for the Tubarao a Ararangua of Brazil

Pacific Locomotive for Central of Brazil

The Central is owned by the government and includes important lines in the states of Rio de Janeiro, Sao Paulo and Minas Geraes, among them being the trunk lines from Rio de Janeiro to Sao Paulo and Pirapora in Minas Geraes. The mileage consists of 690 miles of 5 ft. 3 in. gage, 785 miles of meter gage, and 39 miles of mixed gage. The maximum grade on the broad gage portion is 1.8 per cent and on the meter gage portion 2 per cent, while the maximum curves are 9½ deg., or a radius of 180 meters on the broad gage portion, and 17½ deg., or a radius of 100 meters on the narrow gage portion.

The motive power consists of 365 broad gage and 174 meter gage locomotives; of these 500 were constructed by American builders. Owing to the scarcity and relatively low grade of native Brazilian coal the fuel situation is a serious one and the character of the fuel varies in different localities. On the Central of Brazil 291 locomotives burn wood, 184 burn coal, 4 burn oil, and 12 burn pulverized fuel.

The Pacific type locomotive exhibited was built at the Schenectady plant, is of 5 ft. 3 in. gage, weighs 210,000 lb. in working order, and has a rated tractive force of 28,300 lb. The boiler is of the straight top type, 64¾ in. inside diameter at the first ring, and carries 175 lb. steam pressure. The firebox is 96⅛ in. long and 75¼ in. wide, and designed to burn Brazilian lignite coal, the grate area being 50.2 sq. ft. The firebox is fitted with a brick arch carried on arch tubes and in addition is equipped with a Nicholson thermic syphon which adds 40 sq. ft. to the firebox heating surface. The boiler has 160 two-in. tubes and twenty-four 5⅜-in. flues, 19 ft. long. The superheater was furnished by the Superheater Company; a pyrometer is included. Additional fuel economies are secured by the use of a Worthington feedwater heater.

The locomotive is lighter than those used on the larger American roads but represents good modern practice. The cylinders are 21½ in. by 28 in., controlled by piston valves operated by Walschaert gear. The driving wheels are 68 in. in diameter. Among the fittings are Franklin automatic

driving box wedges and firedoor, Pyle electric headlight, pneumatic bell ringer, Smith adjustable hub plates and Nathan injectors and lubricators. The locomotive is equipped with the Westinghouse brake on engine and tender with a 9½-in. pump and a steam auxiliary driver brake.

Pacific Locomotive for Mogyana Railway

The Mogyana railway is a private line of meter gage, located mainly in the state of Sao Paulo, and forms the trunk line from Campinas, Sao Paulo, to Araguary, Minas Geraes. In addition to 1,210 miles of meter gage track there are 53 miles of branch line of 24-in. gage. It is the longest narrow gage railroad in South America.

This road has 182 locomotives, 172 being of meter gage and 10 of 24-in. gage. They were furnished by various builders, 78 being of American manufacture, 88 of European, while 16 were built in the shops of the railroad.

The exhibition locomotive, which was built at the Cooke works, weighs 113,000 lb. in working order and has a rated tractive force of 19,700 lb. The cylinders are 17½ in. by 20 in., operated by piston valves and Walschaert gear. The driving wheels are 45 in. in diameter. Wood is the fuel used.

The boiler is of the straight top type, 55 1/16 in. inside diameter at the first ring and carries 170 lb. steam pressure. It is equipped with a superheater and a pyrometer. Special equipment includes Pyle electric headlight, Franklin fire door, and automatic wedges, Nathan injectors and lubricators, and Davis 33-in. cast steel tender wheels. The brake equipment was furnished by the Vacuum Brake Company, of London.

Mikado Locomotive for Tubarao a Ararangua

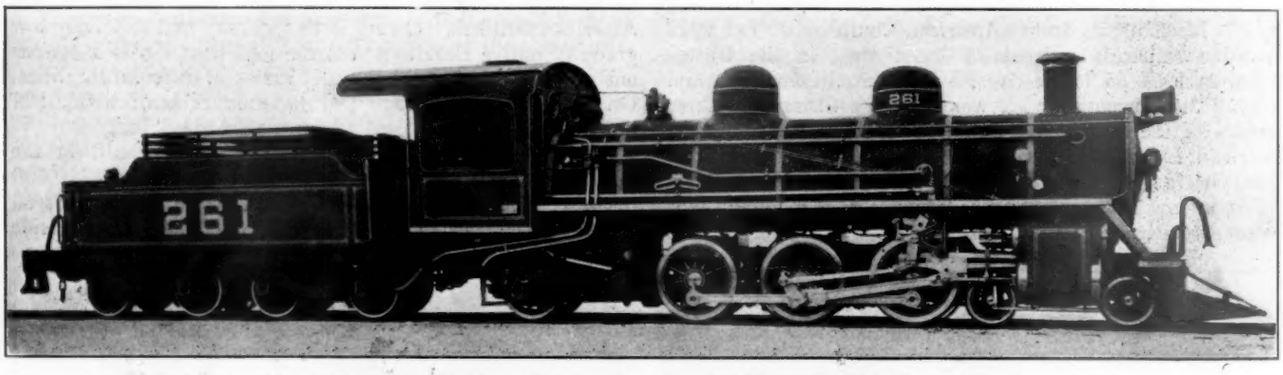
The Tubarao a Ararangua is a new line of meter gage, built by the government in the state of Santa Catharina and leased to the Cia. Brazileira Carbonifera de Ararangua. At present 35 miles are in operation and 22 miles under construction. The Mikado locomotive shown was built on an order from the Brazilian Railway Board by the Montreal Locomotive Works. The weight in working order is 120,000 lb. and the rated tractive force, 20,500 lb. The boiler is of the straight top type, 56 15/16 in. diameter, inside of the first ring. As the fuel is a low-grade native coal, a liberal grate area was necessary. The firebox is 90 3/16 in. long and 75¼ in. wide inside, and the grate area is 47 sq. ft. The boiler is equipped with a superheater and a brick arch carried on arch tubes.

The cylinders are 16 in. by 22 in. and the driving wheels are 42 in. diameter. The valve gear is of the Walschaert type and the valves of the piston type. Special equipment includes power grate shaker, automatic fire door, and electric headlight. The engine is equipped with an automatic vacuum brake for tender and train, operated by a Gresham ejector. The drive brakes are of the steam cylinder type and as an extra safeguard a Le Chatelier water brake is fitted.

TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS

Railroad	Central of Brazil	Mogyana	Tubarao a Ararangua
Type of Locomotive	4-6-2	4-6-2	2-8-2
Track Gage	5 ft. 3 in.	39⅜ in.	39⅜ in.
Cylinders, diam. and stroke.	21½ in. by 28 in.	17½ in. by 20 in.	16 in. by 22 in
Valves, pistons, dia.	12 in.	10 in.	9 in.
Weights in working order:			
On drivers	122,100 lb.	73,000 lb.	84,800 lb.
On front truck	46,100 lb.	22,500 lb.	13,200 lb.
On trailing truck	41,800 lb.	17,500 lb.	22,000 lb.
Total engine	210,0u0 lb.	113,000 lb.	120,000 lb.
Tender	106,500 lb.	68,600 lb.	62,600 lb.
Wheel bases:			
Driving	12 ft. 6 in.	9 ft. 6 in.	11 ft. 3 in.
Total engine	32 ft. 4 in.	25 ft. 10 in.	26 ft. 10 in.
Total engine and tender	58 ft. 11¾ in.	48 ft. 11¾ in.	49 ft. 11 in.
Driving wheels, dia. out. tires	68 in.	45 in.	42 in.
Boiler:			
Type	St. Top	St. Top	St. Top
Steam pressure	175 lb.	170 lb.	180 lb.
Fuel	Braz. lignite	Wood	Soft Coal
Dia. first ring, inside	64¾ in.	55 1/16 in.	56 15/16 in.
Firebox, length and width.	96⅛ in. by 75¼ in.	81⅛ in. by 52¼ in.	90 3/16 in. by 75¼ in.
Tubes, number and dia.	160-2 in.	103-2 in.	90-2 in.
Flues, number and dia.	24-5⅜ in.	16-5⅜ in.	15-5⅜ in.
Length over tube sheets.	19 ft. 0 in.	16 ft. 0 in.	11 ft. 9 in.
Grate area	50.2 sq. ft.	29.4 sq. ft.	47 sq. ft.
Heating surfaces:			
Firebox, incl. comb. chamber and arch tubes.	203 sq. ft.*	94 sq. ft.	157 sq. ft.
Tubes and flues	2,222 sq. ft.	1,215 sq. ft.	796.5 sq. ft.
Total evaporative	2,425 sq. ft.	1,309 sq. ft.	953.5 sq. ft.
Superheating	552 sq. ft.	308 sq. ft.	200 sq. ft.
Comb. evap. and superheat	2,977 sq. ft.	1,617 sq. ft.	1,153.5 sq. ft.
Tender:			
Water capacity	4,500 gal.	2,600 gal.	2,600 gal.
Fuel capacity	8½ tons	2½ cords	5 tons
General data, estimated:			
Rated tractive force, 85 per cent	28,300 lb.	19,700 lb.	20,500 lb.
Cylinder hp. (Cole)	1,456	936	830
Weight proportions:			
Weight on drivers ÷ total weight engine, per cent.	58.1	64.6	70.6
Weight on drivers ÷ tractive force	4.32	3.71	4.13
Boiler proportions:			
Comb. heat. surface ÷ cylinder hp.	2.04	1.73	1.39
Tractive force ÷ comb. heat. surface	9.51	12.18	17.76
Tractive force × dia. drivers ÷ comb. heat. surface	647	548	746
Cylinder hp. ÷ grate area	29.0	31.8	17.65

*Includes thermic syphon.



Meter Gage Pacific Type Locomotive for the Mogyana Railway of Brazil

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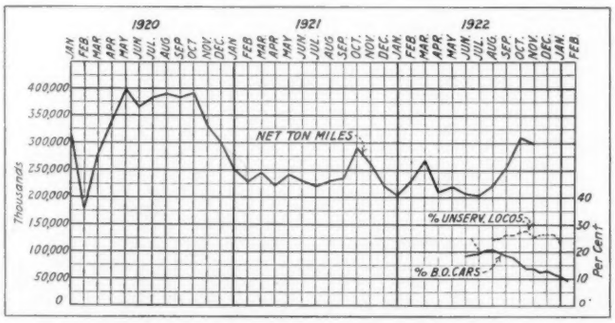
THE CANADIAN PACIFIC will run its own cruises in 1924 instead of chartering its vessels to others. Tentative plans have now been made for five cruises in January and February, 1924, one of which will be from Vancouver to New York, via the Panama Canal.

IN ARKANSAS a bill has been introduced in the lower house of the general assembly which provides that whenever a passenger train is one hour late a special train must be run on its schedule, except when the lateness is excusable because of a wreck. Failure to observe the proposed law would be punished with a fine of $1,000 for each offense.

Boston & Maine Shows Remarkable Improvement

Earned in 1922 $27,991 After Fixed Charges, As Compared with Only 31 Per Cent of Charges in 1921

THE RECOVERY which the Boston & Maine succeeded in making in its net income in 1922 was of such degree as would have appeared practically impossible when viewed in the light of conditions as they existed a year ago at this time. The measure of the improvement is best shown in the fact that whereas in 1921 the property earned only 31 per cent of its fixed charges, in 1922 it met these charges with a small margin to spare. The net after fixed charges in 1922 was only $27,991, but it compared with a deficit after fixed charges in 1921 of $6,612,421. Of course, this means that the improvement, as great as it was, did not prove sufficient to bring the figures up to the pre-war averages. The small margin over fixed charges in 1922 allowed nothing on the first preferred stock which was issued at the time of the re-



B. & M. Traffic and Equipment Condition

organization in payment for the stock of the leased lines which were merged with the parent company. However, the fact remains that the improvement made in 1922 over 1921 was remarkable. It is also evident that the situation promises well for 1923.

The Boston & Maine, in common with the other New England roads, showed up very poorly during federal control, and in the period following federal control results were even worse. Thus the road had a standard return of $9,500,644, which, because of its being based on the average net operating income for the three years ended June 30, 1917, we may regard as the best gage of pre-war earnings. The company earned for the government in 1918 only $1,895,400 and in 1919, only $3,577,108. In 1920 there was a deficit after rentals of $11,918,220, this marking the low point in the record. The 1921 deficit after rents was $1,401,770, a marked improvement over 1920 but still a deficit. The 1922 figures show a net operating income of $6,475,740, this making 1922 by far the best year of the five to which reference has been made, but not putting 1922 back on the standard return basis.

In 1918 and 1919 and for the first two months of 1920 the poor operating results were covered, as far as the corporation was concerned, by the standard return and for the six months from March to August, 1920, by the guaranty. Even with the poor operating results of 1920 the corporation had a net after fixed charges of $614,730. Had it not been for the standard return for two months and the guaranty for the following six the company would have failed to meet its fixed charges by over $17,000,000. In 1921, operating entirely on its own, it failed to meet its fixed charges by $6,612,421. In 1922, as already noted, the fixed charges were met with a margin or net income of $27,991.

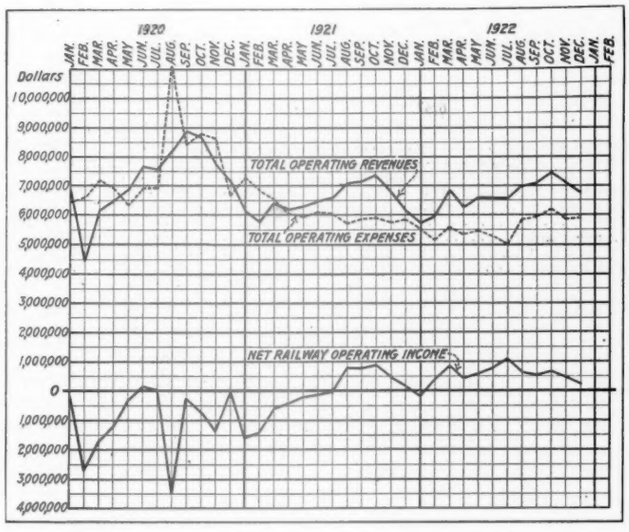
The interesting feature in connection with the improvement in net income in 1922 as compared with 1921 was that it was brought about without any increase in traffic and in spite of the coal and shop strikes. The total operating revenues in 1922 were actually $79,800,123, an increase of

BOSTON & MAINE NET INCOME

Year	Net operating income	Net after fixed charges
1918	$1,895,400	$226,930*
1919	3,577,108	2,657,523*
1920	def. 11,918,220	614,730†
1921	def. 1,401,770	def. 6,612,421
1922	6,475,740	27,991

*Includes standard return.
†Includes standard return for first two months and guaranty for March to August.
The Boston & Maine's standard return (based on the average net operating income for the three years ended June 30, 1917) was $9,500,644.
Fixed charges in 1922 totaled $7,244,957. The net after fixed charges was before deductions for equipment trust installments totaling $504,617, and income applied to sinking funds, $239,620.

$1,322,705 over 1921. Increased divisions resulting from the Interstate Commerce Commission's decision in the New England divisions case have been effective since April 1, but the increase in freight revenues in 1922 as against 1921



B. & M. Revenues and Expenses for the Last Three Years

was only $361,253. There was a decrease of $1,089,565 in passenger revenues due in some measure, no doubt, to increased competition by automobile transportation. A sizeable increase was shown in express revenues.

Operating Expenses Reduced $6,104,488

Operating expenses in 1922 totaled $67,054,397. This figure was less by $6,104,488 than in 1921 and it is noteworthy that the better part of this decrease was in transportation expenses, which, totaling $36,445,903, were less by $3,972,630 than in 1921. It is difficult to determine, from the available figures at least, the exact reasons for this sharp and satisfactory decrease in transportation expenses. One reason unquestionably was the reduction in wages which was effective throughout only part of 1921 but all of 1922. Another was reduced costs of fuel. In 1921, for example, the

road's average cost of coal f. o. b. line of road was $6.84 a ton, whereas in 1922 it was $6.09, or 75 cents a ton less. The 1922 figure was still high and its amount shows how much of a handicap high fuel costs prove to the road. The 1922 figure would have been slightly lower, although still very much above pre-war costs, but for the fact that fuel scarcity compelled the Boston & Maine to purchase some 400,000 tons of English and Canadian coal for which a higher price was paid and which, because of its varying character and difference from domestic coals, did not prove entirely satisfactory when burned on locomotives.

Poor Equipment Condition

The Boston & Maine was hurt to some extent by the strike of the railway shopmen, but, on the other hand, it has apparently made certain gains from the manner in which it carried on the contest with the strikers. These gains are in the form of good-will and a favorable attitude on the part of the industrial interests in the territory served which, in great measure, have compensated for the adverse effects naturally resulting from a difficulty of this kind. The strike does not seem to have unduly affected the volume of business handled as it did in the case of so many other roads. Thus, net ton-miles in July were only slightly below those of June and in succeeding months there were progressive increases resulting from the restoration of the coal traffic and improved industrial conditions generally. The Boston & Maine equipment condition has not been as favorable as might be desired. For the first 11 months of 1922 the road had an average of 17.2 per cent unserviceable cars and 29.4 per cent unserviceable freight locomotives, both of which

BOSTON & MAINE CONDENSED COMPARATIVE STATEMENT OF INCOME ACCOUNT

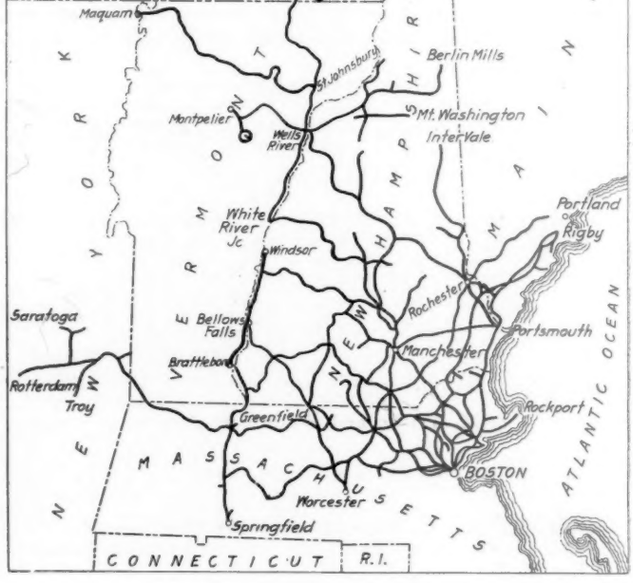
	12 months ended Dec. 31	
	1922	Increase or decrease
Freight revenue	$48,316,267	$361,254
Passenger revenue	22,556,855	—1,089,565
Railway Operating Revenues	79,800,123	1,322,705
Maintenance of way and structure	11,076,742	—1,815,959
Maintenance of equipment	16,112,965	183,240
Traffic	659,242	—45,748
Transportation	36,445,903	—3,972,630
Railway Operating Expenses	67,054,397	—6,104,488
Net Revenue from Railway Operations	12,745,727	7,427,193
Railway tax accruals	2,580,677	—147,547
Railway operating income	10,159,955	7,576,928
Equipment rents	Dr.3,722,624	—661,943
Net Railway Operating Income	6,475,740	7,064,106
Other income	797,209	—170,984
Total	7,272,949	6,893,123
Rent for leased roads	920,376	—2,804
Interest on funded debt	5,976,225	9,920
Total deductions	7,244,957	252,710
Net Income	27,991	6,640,413
Income applied to sinking funds	239,620	33,785
Equipment trust installments	504,617	—44,363
Balance	—716,245	6,650,991

figures are unduly high. There has been some improvement made in recent months. On January 15 the percentage of bad order cars was 9.9 and on January 1 the percentage of unserviceable freight locomotives was 25.9. The poor condition during 1922 was not due so much to the strike as to other and prior circumstances. During the strike the road sent a considerable number of cars and locomotives to outside shops for repairs.

Comment has appeared in the *Railway Age* on various occasions as to the difficulties which confront the Boston & Maine over and above those which have confronted the railways generally. These have been pointed out to be the terminal character of the line, the large proportion of short haul and l.c.l. freight traffic, a large volume of non-profitable passenger business, high fuel costs, a heavy debit per diem balance, a large branch line mileage of low traffic density, etc. The Boston & Maine's net operating income of $6,475,740 in 1922 was equivalent to slightly less than 3 per cent on its property investment figure of $240,000,000 which was used in the 1920 rate case and which is substantially less than the tentative physical valuation announced by the I. C. C. President Hustis has estimated that earnings of 5¾ per cent, or at the rate established by the commission on March 1, 1922, as a fair return, would amount to $13,800,000, much more than sufficient to cover fixed charges, which amount to about $7,000,000, and dividends on the various classes of preferred stock, which dividends at a maximum would amount to $2,750,000. No preferred dividends have been paid since 1920; they are not cumulative.

Prospect for 1923

These details are of special interest because they indicate that if the Boston & Maine can continue into 1923 the improvement in net earnings which it made in 1921 as compared with 1920 and in 1922 as compared with 1921, it should



The Boston & Maine

be in a fair way to have its credit restored to a more satisfactory condition which is quite essential in view of the fact that it will be necessary to provide for the refunding during the next 10 years of over $80,000,000 of maturing obligations in addition to new financing which may be necessary to provide for additions and betterments. President Hustis in an able address, characterized by its unusually informative character and candid treatment of the problem, which he delivered on February 7 before the Chamber of Commerce of Concord, N. H., had this to say concerning prospects for the coming year:

"Now as to 1923. The indications are that results will be much more favorable than last year. There are no important labor controversies pending, and the men who replaced the shop employees who left the service last July are daily becoming more efficient. General business conditions have been improving, and there seem to be prospects of a good year from the standpoint of traffic.

"The cost of locomotive fuel should be less than it was in 1922, and when it is considered that the average consumption of fuel of the Boston & Maine is about 1,700,000 tons per year, it will be recognized that any saving in this item would be substantial. Likewise there are the revenues from the handling of express. Under the present contract with the American Railway Express Company, the Boston & Maine is included within the eastern group and receives the same pro-

portion of gross earnings from express as all the lines in that group. Prior to federal control there were individual contracts. The expenses of the express company, like those of the railroads, have been abnormally high and are in the process of readjustment downwards. Returns for recent months show a decided improvement over the revenues received from this source previously, and it is not unreasonable to expect that they will continue to do so, so that during the present year substantially larger returns may be reasonably expected."

Mr. Hustis did, however, also point out that one cannot foresee what might be done in the matter of freight rates and he expressed the view that the recent I. C. C. interchangeable scrip mileage book order would very likely have an adverse effect on passenger revenues.

An interesting feature in connection with the Boston & Maine is the manner in which it is regarded by the public of New England. There can be no question that the industry of that territory is not entirely satisfied with its transportation facilities and service and has not failed to put itself on record to that effect. It is to be doubted if there is any part of the country where the railroads have been more in the public eye in the past few years than they have in the New England states. On the whole, however, the authorities have gone at the matter in a fair-minded manner and with a rather sympathetic attitude. Just now the matter that is receiving attention is consolidations. This subject is being studied by a committee appointed by the governors of the New England states. The committee has been making a very detailed investigation and its report will no doubt be of much constructive value. Mr. Hustis in his address at Concord had considerable to say on this subject.

"I believe," he said, "that under the provisions of the Transportation Act itself, consolidations are offered as the only permanent solution, particularly for roads in the position of the Boston & Maine which performs a necessary and vital transportation service for the country as a whole under conditions which, while making it a creature of the Act do not leave it free to secure its full benefits except through consolidations.

"Next I believe that when consolidations take place the economic considerations point toward east and west rather than toward an all New England consolidation, for in that direction lies and will continue to lie, the natural intercourse, the preponderating movements of traffic, the beginning as well as the completion of the transaction for which the tariff is framed and the economical benefits through co-ordination of facilities from which financial relief will come.

"Regardless of sentimental considerations, the financial issue cannot be dodged and as between the several plans offered by the commission or suggested by other students of the problem, the one which will provide the strongest transportation system is the one which will most benefit the territory covered by the Boston & Maine."

Continuing Mr. Hustis said: "I wish to say emphatically that there is no commitment or negotiation, either direct or implied, on the part of the Boston & Maine directors for or against any plan of consolidation. The management believes that regardless of the ultimate disposition of the property, it has latent earning power much greater than has been indicated under the abnormal conditions of recent years. It recognizes, of course, that the Interstate Commerce Commission is required to formulate and promulgate a plan for consolidations, even if the time is not yet ripe for its accomplishment. Such a plan must and will be developed, but in the meantime, so far as the Boston & Maine is concerned, it is felt that no consolidation should take place in the immediate future but that in justice to the owners of the property it should be given an opportunity to demonstrate its value under the new conditions which have been created by the Transportation Act.

S. P. and W. P. Arrange for Joint Rates and Double Track

AN UNDERSTANDING between the Southern Pacific and the Western Pacific providing for through routes and joint rates with the Western Pacific and also for double track use of the tracks of the two companies in Nevada has been reached in connection with the order recently issued by the Interstate Commerce Commission authorizing the Southern Pacific to retain control of the Central Pacific, which is expected to be of considerable advantage to the Western Pacific. That road has been under considerable disability because of the lack of joint routes and rates to points on its lines and at the hearings on the Southern Pacific application it requested that any order issued by the commission should require the Southern Pacific to enter into arrangements for additional through routes and joint rates with lines competitive with the lines of the Central Pacific. At the time of the oral argument in the case, however, the Western Pacific withdrew its request and stated that a satisfactory adjustment had been reached with the Southern Pacific. A copy of a memorandum of understanding reached at a conference between representatives of the two roads in New York on January 3 was printed as an appendix to the commission's report in the Southern Pacific case.

The following understanding was reached:

1. The Southern Pacific would apply through freight rates between Southern California points, Banning and West, in connection with the Western Pacific through California interchange points and Utah points and east thereof, under divisions to be agreed upon between the traffic departments of the two companies which shall not discriminate as to rates against Western Pacific as compared with Central Pacific lines.

2. Same arrangement is to be applied to Oregon as to Southern California except an alternative may be the use of the Western Pacific as a bridge between Marysville and Preble or other agreed junction point in Nevada whereby the Southern Pacific will route business as may be agreed upon either as to quantity or nature between points north of Marysville and east of Preble or other junction point agreed upon, a conclusion to be reached after further study of the subject; the arrangement most satisfactory, to the Western Pacific to be adopted.

3. Carload business to and from points on the Suisum branch of the Sacramento Northern shall be transported by the Southern Pacific as a bridge between Suisum and Sacramento under an agreed compensation per car or per ton to be determined by traffic officers of the two companies. It is desired to have this compensation on as simple a basis as possible but it may be necessary to vary according to commodities. This arrangement is to extend to the Suisum branch as now constructed only.

4. The two roads agree that it is desirable to use their tracks in Nevada in common for double-track service for both companies to the greatest practicable extent and they will work together to the end of reaching a satisfactory agreement covering such use, with the understanding that the Southern Pacific will undertake a fair share of the additional burden placed upon the Western Pacific by such arrangement. The foregoing statement applies both to operating expenses, including maintenance, and capital expenditures or the carrying charge of capital expenditures. It is understood that inasmuch as any such arrangement will necessitate a large expenditure of money, it will be made under a long term nonrevocable agreement.

5. If the Western Pacific should lose its independence; that is, come under the ownership or control of one of the larger systems, such as the Santa Fe or Burlington, then the Southern Pacific shall have the option of canceling the arrangements under paragraphs 1, 2, and 3. Likewise any such large system successor in interest to the Western Pacific or controlling the Western Pacific shall have the option of canceling the arrangements made under paragraphs 1, 2, and 3. It is understood, of course, that both such options will be subject to the companies making application for cancellation and securing any requisite public authority. The association of the Western Pacific with the Denver and Rio

Grande or the joint control of the Denver and Rio Grande by the Western Pacific and Missouri Pacific giving the two latter companies a community interest, will not be deemed a "large system" as related hereto.

6. It is understood that nothing in this memorandum and nothing in the memorandum submitted by the Interstate Commerce Commission to the interested parties in the case of the application of the Southern Pacific for lease of the Central Pacific shall be deemed as authorizing the withdrawing of any rates now existing or closing any gateways for interchange of traffic or interfering with the movement of any through cars, freight or passenger, as between the Western Pacific, Southern Pacific, Central Pacific, Denver and Rio Grande and Union Pacific.

7. If any arrangement between the Southern Pacific and Western Pacific results in the Southern Pacific working for traffic over the Western Pacific which under the memorandum submitted by the Interstate Commerce Commission the Southern Pacific should preferentially solicit for the Union Pacific, then the Western Pacific will assume the obligation following the Southern Pacific's solicitation and deliver such traffic to the Union Pacific at Ogden. No such traffic is specifically in mind and this paragraph is merely inserted to call attention to the Southern Pacific's obligation under the memorandum from the commission that it has accepted.

8. It is also agreed that the Southern Pacific and the Western Pacific will enter into negotiation for the purpose of providing, if a satisfactory arrangement can be worked out, for co-operation in connection with or common operation of the refrigerator cars of the Pacific Fruit Express and the Western Pacific. It is understood that the Southern Pacific's obligation under this paragraph is subject to its paramount obligation to submit the matter to and work in co-operation with the Union Pacific.

Plan for New Railroad Investigation Dropped

WASHINGTON, D. C.

PRESIDENT HARDING has definitely abandoned the idea of asking Congress to sanction the appointment of a Presidential commission to investigate questions pertaining to car supply, it was officially announced at the White House on Friday. As reported last week, the President had considered the appointment of such a commission to consist of 12 to 15 representatives of the various interests involved, and had submitted the plan to various members of Congress but so many of those consulted wanted to broaden the scope of the investigation by the inclusion of various subjects, including it is understood, the question of freight rates, that it was concluded that the situation would be confused and probably no definite results would be obtained. Also, to include representatives of all the interests that would desire representation, it was said, might make a commission of possibly 50 members. After having been informed of other proposed investigations, presumably the voluntary investigation of transportation questions proposed by the United States Chamber of Commerce and the investigation ordered by the Interstate Commerce Commission, the President decided to drop the matter. The Presidential investigation had been urged mainly by the National Association of Owners of Railroad Securities.

Chairman Cummins of the Senate committee on interstate commerce conferred with the President on the proposed investigation on February 15 and expressed the opinion that a resolution providing for the appointment of such a commission could not be passed before March 4 because of the controversy that would be aroused as to the subjects to be covered. He also pointed out that the Warfield plan involves legislation which would have to be the subject of hearings even if an investigation were held before the next session of Congress. He said that he saw nothing in the present transportation situation that would require immediate action by Congress and that the transportation problem would occupy a large share of the attention of the next Congress.

In reply to a question whether the President would ask the Interstate Commerce Commission to take remedial action with reference to the car situation, it was stated by a spokesman for the President that he "had come to the conclusion that the Executive has no authority to ask a decision of the Interstate Commerce Commission." It was also stated that the President does not believe that an embargo on shipments of anthracite coal to Canada, which has been vigorously urged by New England public authorities, would be a wise course or afford a solution of the problem.

A bill to authorize the President to declare an embargo on the shipment of coal to Canada was introduced in the Senate on February 15 by Senator Lodge of Massachusetts. A few days before the President had declined to declare such an embargo when requested by state authorities of New York and New England. Senator Walsh of Massachusetts has written a letter to the Interstate Commerce Commission, which is investigating the anthracite coal situation, urging it to order the suspension of all other traffic between the coal fields of Pennsylvania and points in New York, New Jersey and New England in order to clear the way for coal shipments.

By way of reply to the recent report of a special committee of the American Railway Association on the car pooling plan of the security owners' association, the "public relations committee" of the securities association has issued a pamphlet entitled "The Strange Case of Dr. Pro and Mr. Con," for the purpose of showing that Donald D. Conn, now manager of the Public Relations Section of the Car Service Division of the American Railway Association and a member of the special committee, "while completely endorsing" the Warfield proposals before his employment by the American Railway Association and while he was acting as chief of the Transportation Division of the Joint Commission of Agricultural Inquiry, in charge of its comprehensive report on the relations of agriculture and transportation, "under the enthusiasm of his newly assumed epaulettes of office" now asserts that "the present system cannot be improved."

Excerpts are given from the report of the joint commission criticising the American Railway Association as "not equipped to prevent emergency conditions" and recommending "prompt consideration and adoption of a comprehensive plan for the central control and distribution of freight cars" and also from letters from Mr. Conn expressing approval of the Warfield plan and stating that while the plan in its entirety might not be adopted by the joint commission, he was sure that the idea would be included in the report. This is contrasted with statements in a recent speech by Mr. Conn that "this is exactly what the Car Service Division of the American Railway Association is doing today" and that the report was "never intended to support any plan calling for the pooling of freight cars or a central financial agency." The statement says that "after completion of the work of the joint commission Mr. Conn suggested that his services were available to the association of security owners" but that he was not employed.

The pamphlet also replies to other statements made by Mr. Conn and by the special committee of which he was a member, saying that of its 11 members, five "were employed directly by the American Railway Association (to report against themselves?)" and that of the remaining members "not more than one (possibly two) is recognized as a practical car service man."

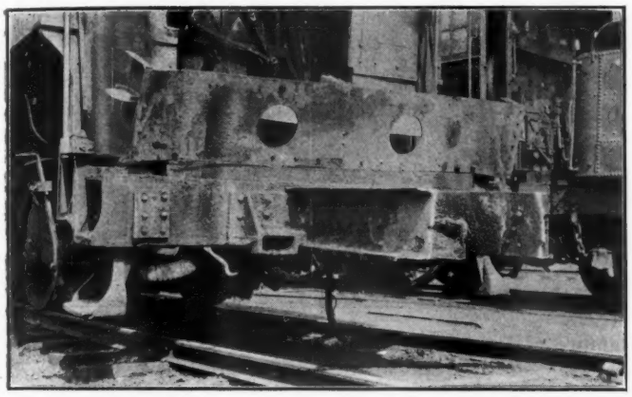
THE UNION STATION at Toronto, Ontario, built but not yet used, will be brought into use as soon as the necessary arrangements can be made, according to Sir Henry Thornton, president of the Canadian National, addressing the Canadian Club at Toronto on February 12.

Report of the Bureau of Locomotive Inspection

More Locomotives Inspected; A Smaller Number of Defects and 15 Per Cent Fewer Accidents

THE ELEVENTH ANNUAL REPORT to the Interstate Commerce Commission of the chief inspector of the Bureau of Locomotive Inspection for the fiscal year ended June 30, 1922, shows an increasing number of locomotives inspected with a reduction in the number of defects and also a reduction in the number of accidents. A summary of the report follows:

The tables show the number of locomotives inspected, the number and percentage of those inspected found defective, and the number for which written notice for repairs was



Broken Sills Caused Locomotive and Tender to Separate—Lost Motion Previously Reported

issued because of not meeting the requirements of the law, with the total number of defects found and reported. They also show the number of accidents, with number of persons killed and injured, caused by the failure of some parts or appurtenance of the locomotive and tender, including the boiler and appurtenances thereof.

A summary of all accidents and casualties during the year ended June 30, 1922, as compared with the year ended June 30, 1921, shows a decrease of 15.4 per cent in the

LOCOMOTIVES INSPECTED AND DEFECTS FOUND

	1922	1921	1920	1919	1918
Number of locomotives inspected...	64,354	60,812	49,471	59,772	41,611
Number found defective	30,978	30,207	25,529	34,557	22,196
Percentage found defective.....	48	50	52	58	53
Written notice for repairs served..	3,089	3,914	3,774	4,433	2,125
Total defects found.....	101,734	104,848	95,066	135,300	78,277

number of accidents, a decrease of 48.4 per cent in the number killed, and a decrease of 11.3 per cent in the number injured.

During the fiscal year there were 33 boiler explosions, resulting in the death of 22 persons and the serious injury of 56 others, a substantial reduction as compared with the preceding year. Most of these explosions were caused by overheating of the crown sheet, due to low water. Proper inspection and repair of all parts and appurtenances of the locomotive, including the boiler, is essential to safe and efficient operation, especially the firebox, water feeding and indicating appliances, together with thorough boiler washing as often as water conditions require, and the removal of scale and sediment from the interior of the boiler which cause heating surfaces to overheat, crack and weaken, and frequently cause failure with serious results.

Investigation of accidents during the year, where the fusion or autogenous welding process was involved supports the position previously taken that the process has not yet reached a state of perfection where it can be safely depended upon in boiler construction and repair where the strain to which the structure is subjected is not carried by other construction

ACCIDENTS CAUSED BY THE FAILURE OF SOME PART OR APPURTENANCE OF THE LOCOMOTIVE AND TENDER, INCLUDING THE BOILER

	1922	1921	1920	1919	1918
Number of accidents.....	622	735	843	565	641
Decrease from previous year (per cent)	15.4	12.8	[1]49.2	11.8	4.1
Number killed	33	64	66	57	46
Decrease from previous year (per cent)	48.4	3	[1]15.8	[1]23.9	25.8
Number injured	709	800	916	647	756
Decrease from previous year (per cent)	11.3	12.6	41.6	14.4	4.8

[1]Increase

which conforms to the requirements of the law and rules, nor in firebox crown-sheet seams where over-heating and failure are liable to occur, nor its excessive use in repairing long and numerous cracks in side sheets.

Records continue to show that approximately 80 per cent of all autogenously welded seams involved in so-called "crown-sheet failures" have failed, while 16.9 per cent of

Exploded Main Reservior; All Seams Autogenously Welded Four Years Before Explosion

riveted seams have failed under like conditions. The fatalities where sheets tore have been seven and one-half times as great as where they did not tear. From July 1, 1916, to June 30, 1922, autogenously welded seams were

ACCIDENTS CAUSED BY THE FAILURE OF SOME PART OR APPURTENANCE OF THE LOCOMOTIVE BOILER

	1922	1921	1915	1912
Number of accidents	273	342	424	856
Number killed	25	51	13	91
Number injured	318	379	467	1,005

involved in 22.1 per cent of the crown-sheet failures, while 44.1 per cent of the total killed in crown-sheet accidents were killed where the autogenously welded seams were involved.

A large number of accidents have been caused by defective grate-shaking apparatus, the majority due to the shaker bar

not properly fitting the fulcrum lever. This condition has been brought about because of no standard design being maintained, making such parts interchangeable. It should be required, therefore, that all carriers adopt a standard whereby shaker bars can be made interchangeable on all of their locomotives with a proper fit.

During the year 148 applications were filed for extension of time for removal of flues. Investigation disclosed that in 17 cases the condition of the locomotives was such that no extension could be properly granted. Fifteen were in such condition that the full extension requested could not be authorized, but an extension for a shorter period was allowed. Six extensions were granted after defects disclosed by the investigation had been repaired. Nine applications were withdrawn and the remaining 101 were granted.

There were filed 1,508 specification cards and 5,519 alteration reports necessary in determining the safe working pressure and other required data for the boilers represented. These specification cards and alteration reports have been carefully analyzed to determine whether or not the boilers covered were so constructed as to be in safe and proper condition for service, and that the stresses were within the limits required. Numerous discrepancies were found and corrective measures taken.

No formal appeal from the decision of any inspector was filed during the year, which again demonstrates that good judgment was exercised by them in the performance of their duties.

In closing the report the following recommendations, made last year, were repeated:

That the act of February 17, 1911, be amended to provide for additional inspectors and increased compensation, and to provide for a sufficient appropriation adequately to carry out the purpose of the law.

That all locomotives not using oil for fuel have mechanically operated fire doors so constructed that they may be operated by pressure of the foot on a pedal or other suitable device located on the floor.

That power-reversing gears be applied to all locomotives and that air-operated power-reversing gears have steam connections with the operating valves conveniently located, so arranged that in case of air failure steam may be quickly used to operate the reversing gears.

That a power grate shaker be applied to all coal-burning locomotives.

That all locomotives be provided with a bell so arranged and maintained that it may be operated from the engineer's cab by hand and by power.

That cabs of all locomotives not equipped with front door or windows of such size as to permit of easy exit have a suitable stirrup or other step and a horizontal handhold on each side approximately the full length of the cab, which will enable the enginemen to go from the cab to the running board in front of it, the distance between the step and handhold to be not less than 60 in. nor more than 72 in.

That all locomotives, where there is a difference between the readings of the gage cocks and water glass of two or more inches under any condition of service, be equipped with a suitable water column, to which shall be attached three gage cocks and one water glass, with not less than 6 in., preferably 8 in., clear reading, and one water glass with not less than 6 in., preferably 8 in., clear reading on the left side or back head of the boiler.

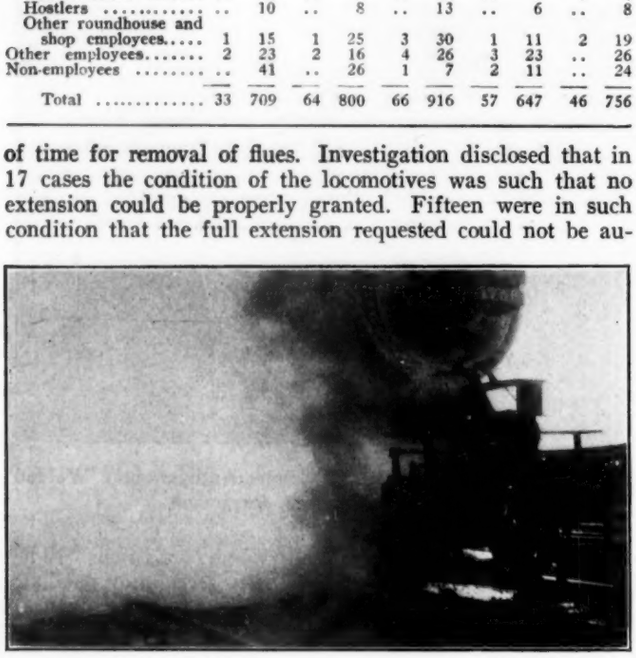
DERAILMENTS AND ACCIDENTS DUE TO DEFECTS IN OR FAILURE OF SOME PART OF THE LOCOMOTIVE OR TENDER

	1922	1921	1920	1919	1918
Number of derailments*	22	8	7	7	2
Number killed	5	..	7	6	..
Number injured	61	30	18	7	2

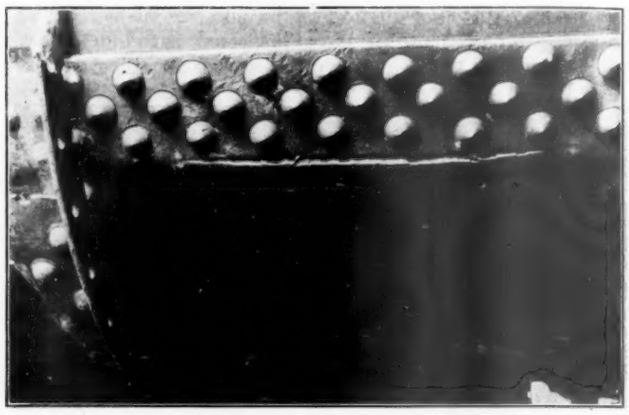
*Only derailments reported by carriers as being caused by defect in or failure of parts of the locomotives or tender were investigated or counted in this tabulation.

PERSONS KILLED AND INJURED, CLASSIFIED ACCORDING TO OCCUPATIONS

	1922		1921		1920		1919		1918	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Members of train crews:										
Engineers	11	213	15	237	16	272	14	194	11	245
Firemen	10	277	25	360	20	404	22	265	19	306
Brakemen	7	66	13	64	9	77	11	82	6	62
Conductors	..	25	2	20	2	19	2	16	..	21
Switchmen	1	13	3	15	4	19	1	7	2	8
Roundhouse and shop employees:										
Boilermakers	1	10	1	7	2	9	1	9	..	11
Machinists	..	9	1	3	1	20	..	5	..	11
Foremen	..	1	1	3	..	3	..	3	1	4
Inspectors	..	2	..	5	..	1	..	6	4	4
Watchmen	..	3	..	4	4	3	..	2	..	3
Boilerwashers	..	1	..	7	..	13	..	7	1	4
Hostlers	..	10	..	8	..	13	..	6	..	8
Other roundhouse and shop employees	1	15	1	25	3	30	1	11	2	19
Other employees	2	23	2	16	4	26	3	23	..	26
Non-employees	..	41	..	26	1	7	2	11	..	24
Total	33	709	64	800	66	916	57	647	46	756



Ordered Removed from Service on Account of Steam Leakage



Rupture of Patch Applied to the First Course Longitudinal Seam in the Boiler Barrel

THE SOUTHERN RAILWAY announces that beginning March 1, a through car for package freight will be run regularly from Inman Transfer, near Atlanta, to Havana, Cuba by way of the Florida East Coast and the car ferry from Key West. Freight from north and west of Atlanta will be sent to Inman Transfer to be consolidated into carloads.

Common Interests of Roads and Employees*

The Public Believes Charges of Each Against the Other and Managements and Men Both Suffer

By W. G. Lee
President, Brotherhood of Railroad Trainmen

THE Brotherhood of Railroad Trainmen should need no special introduction to this assembly. Every man here has had more or less direct experience with it, and I believe that very few of you have had occasion to challenge its fairness and honesty. The members of the Brotherhood, first of all, are American citizens, who have a complete sense of their obligation to the laws of their country and a settled determination not to depart from them. While at times there may have been some radical expression charged to certain members of this organization, the great bulk of its membership at heart is as patriotically sound as any other class of business men or employees in the United States and Canada, and, I may say, the world.

The loyalty of the membership of the Brotherhood of Railroad Trainmen to its country and its laws is followed out in precept and performance by their observance of the laws of the organization. In the past few years situations have arisen that made the enforcement of its laws necessary and under conditions that were difficult to understand by the bulk of our membership. There is a loyalty among workmen that prompts them, whether well-advised or otherwise, to go to the assistance of each other. In the last few years this situation has developed in the extreme in two instances, in each one of which the temptations to leave the service, ignore the contracts made with railway companies, and ignore the laws of the organization, were very strong indeed. They were so much so that in the first instance, in 1920, thousands of our men disobeyed the laws of the organization, violated their contracts and left the service of the companies. These men were disciplined according to the laws of the organization, and while the men disciplined did not agree that it was necessary, the bulk of the organization did realize that if an organization demands recognition and the right to make contracts representing any class of service it must assume all of the responsibilities for the observance of contract that the situation demands.

In the strike of last year the same situation arose in a lesser degree, and again it was necessary to enforce the laws of the organization against those of its members who disobeyed them. The bulk of the organization is in accord with the enforcement of organization law, and it stands for no disobedience of its statutes or violations of its contracts. This is not popular among certain employees who feel that expediency is the first law of organization progress.

The Brotherhood has been severely criticized, assailed, and misrepresented because it did exactly what its representatives in convention said it should do under such circumstances, and instead of being criticized and damned for obeying the laws of its own creation it should have been commended for doing so by its strongest critics. The Brotherhood in the future, as in the past, will obey every law, every statute, and fulfill every obligation according to its understanding.

Unfortunately there have been times when the lines between railroad employers and employees have been very sharply drawn, when it has been necessary for both sides to express their disbelief in the fairness of the demands of the other, and to express a determination to fight it out rather than accept compromise of any sort. And, yet, to the credit of both sides, it honestly can be said that when calmer counsel has succeeded intense feeling, usually we have managed to get together and adjust our affairs, if not satisfactorily to both sides, at least in a manner that has enabled us to get along peacefully and fairly well together.

I have unlimited faith in the fairness of my fellow men. I believe that when free from all stress of feeling that accompanies acute situations, and intense excitement has given way to calmer judgment, very few instances have occurred wherein the doctrine of "let us counsel together" has not brought far better results to both sides than a declaration of war. We have made very few of them, in fact we have made sacrifices to avoid the severance of relations with employers, and believe that by so doing we have contributed our full share toward stabilizing the transportation business, contributed our full share toward the most efficient railway service in the world, and, in general, contributed a wholesome influence toward a better understanding of the relations as they should exist between the employer and the employee.

Not Impressed with the Public as an Employer

Aside from the questions of wages and rules, which naturally are regarded as the most important coming between us, there are other questions that the employer and the employee can well afford to discuss so that each may better understand the viewpoint of the other. The constitutional authority given Congress to control the railroads is responsible for the majority of the ills of which the railroads and their employees complain. Regardless of the responsibility or the necessity for the law, in the first place, and the creation of the Interstate Commerce Commission in the next place, we cannot escape the effects of the present situation that have arisen because of government regulation without government's realization and acceptance of responsibility. This is a broad statement, but from my point of view it is absolutely true. If anything were needed to confirm my opinion, it is furnished by the attitude of the government during the period of its control of the railways, during which time the director general admitted that railway revenues were inadequate to meet the legitimate costs of railway operation and the government did not have the courage to increase rates sufficiently to cover legitimate railway purposes, but preferred to have the railways continue operation at a loss to be made up from the public treasury.

The misunderstanding due to the failure of the government to assume responsibility resulted in a general denunciation of the railroads of the United States, the effects of which were not entirely lost upon the wage-earning interests of railroad employees. Whether we appreciate it or not, when the public discusses railroads, it draws no line of discrimination between the railroad company and the railroad employee. Had the government of the United States assumed the responsibility, as it should, and given to the railroads of the United States revenues that it knew were absolutely necessary to provide for their operating expenses, there would not have been the aftermath of denunciation of railroad policies and practices that followed when the government was called upon to make good these deficiencies.

There are said to be in the neighborhood of 150 bills submitted to Congress, each one of which, either in whole

*Abstract of an address before the Western Railway Club, Chicago, on February 19, 1923.

or in part, attempts in some manner to regulate the railroads. As the representative of the train and yard men of this country, I am not unmindful of the effects upon railroad employees of whatever legislation may be enacted. I am not at all impressed with the idea that the public is a good employer, and I know it is a very poor paymaster. The public simply reflects the collective selfishness of the individual, which is not at all inclined to give any one else advantage. The Brotherhood of Railroad Trainmen directly is interested in very few of the propositions before Congress. It has not taken a decided position in regard to any phase of government ownership, except briefly to assert that if any plan is adopted that meets its approval it also must "preserve the economic rights now possessed by railroad employees," which means that the right to leave the service must not be impaired by any plan for government ownership.

Legislation Brotherhoods Have Sought

We have been, and are, interested in certain legislative propositions that do not meet the approval of the railroad companies. But in all fairness, has there ever been a legislative proposition, regardless of all of its necessities, that promised to cost the railroad companies a dollar, that did not meet with their opposition? It is true, there have been bills introduced in Congress and the state legislatures that may have been impossible, so to speak, and, yet, back of every presentation there was the desire, not to bring about a situation impossible for the railroads but to add to the safety of employees, the safety of the public and the promotion of the general welfare.

Our first legislative effort of any great moment was the attempt to secure the enactment of the automatic coupler and power brake law. You who were in railroad service at that time remember the bitter opposition that was brought against our efforts by all of the railroads. Finally it was passed, and I say, to the shame of certain of the railroads, that they opposed the enactment of that law, disobey it and now are asking that the Interstate Commerce Commission be enjoined from enforcing its provisions. This was the beginning of safety appliance legislation, which was opposed by the railroads, and which has been of greater advantage to them in increasing revenues than any legislation they ever had enacted in their own behalf. Since the law was passed the number of the killed and totally disabled has been reduced from 22 to 4.6 per thousand, and the long trains that you are hauling across the country today are due more to the enactment of safety appliance legislation than anything you ever devised.

The Federal Liability Law, which is the only bit of legislation that stands between an employee killed or injured in interstate commerce and the poorhouse, was just as bitterly objected to by the railroad companies and just as energetically contended for by the employees as any of the other laws that have been placed among the federal statutes for the preservation of the lives and limbs of railroad employees.

It is just as natural for a railroad company to defend its own pocketbook as it is for a railroad employee to insist on protecting his. These are some of the conditions that we have met jointly and that I am glad to say, have not caused any lasting differences of opinion between us.

How Shall Relations Be Controlled?

We have one Federal legislative proposition that is of interest to all of us; it is the repeal of Title 3 of the Transportation Act, which contemplates doing away with the United States Railroad Labor Board. I have every reason to respect each member of that board, and whatever objection has been raised by the organization I represent or myself has not been against the personnel of the board, but has been because of circumstances that surround its operation over which it has no control, that are certain to make the results of its best efforts unsatisfactory. Any court before which two contending parties repeatedly make appearance is bound to become so much in disfavor that whatever it does is certain to meet with objection from one or both sides.

We recognize the valuable service the Labor Board has given to the country; it has stood between the railroads and the employees to the very best of its ability, and there is no question but that it has been instrumental in continuing railway service on more than one occasion. However, railroad employees do not believe in enforced submission of their differences to any court. They believe, and I think you folks agree with them, that when both parties reach the place where neither can agree the old doctrine of the right to hire or fire and the right to work or quit shall maintain.

This brings us to an uncomfortable stage of this discussion. No man wants to quit his job, and I believe no fair-minded employer wants men to quit, and, yet, when we reach the place where one side will not, and the other won't, something must be done. The question now before the country is what shall be done that will insure the continuance of railway operation without too greatly impairing the rights of the employer and the employee. President Harding, in his message to Congress, suggested the substitution of a "labor division in the Interstate Commerce Commission made up from its membership to hear and decide disputes relating to wages and working conditions which have failed of adjustment by proper committees created by the railways and their employees." We believe that if the suggestion of the President were enacted into law, it would be the most unfair legislation affecting railroad companies and their employees that ever was enacted. It would bring all of their affairs directly under government control. If railroad employees are not going to be allowed a voice in the adjustment of questions arising over their work and wages, and are going to be governed absolutely by the government in the settlement of these questions, then it would be far better, so far as employees are concerned, if the government did take over the railroads, for then they would have the government only to oppose them, instead of a combination of the public, the railroads and the government, as they would if the proposition submitted by the President were enacted into law.

The transportation organizations have declared in favor of a return to the Newlands Act, which, while not always proving satisfactory to both parties, was more satisfactory than any substitute that had been used or proposed in its stead. A board of arbitration under the Newlands Act was created through voluntary agreement, specifying in advance that the findings would be accepted by both parties for the period covered. Each side to the controversy selected its own representatives, while the public was represented by arbitrators selected by both of them. Arbitrations under the Newlands Act, while not always satisfactory, did serve the purpose, and the main point in my discussion is that once having accepted arbitration and agreed in advance to abide by the decision of the board, both parties did so. And in agreeing to arbitrate both parties were upon equal ground. If the plan of the President were followed, it would mean that neither the employer nor the employee would have even an advisory voice in the questions submitted, which is something with which we do not agree.

Is There a Substitute for the Strike?

Notwithstanding the disposition of the public to refer to strikes as barbaric methods of settling industrial disputes, we can not agree to its assumed power to take from men by means of process of law their right to a voice in reaching decisions affecting their work and wages; we cannot but believe that for even the government to do so is to deprive them of their constitutional guarantee of the right to enjoy life, liberty and property, for surely all three are involved in every wage adjustment.

You ask, "What else have you to offer in place of the strike?" Gentlemen, I have the greatest confidence in the personal acquaintance of men with each other. I realize how impossible it is for the managers of our great railway corporations to be acquainted with their employees, but if you ever can reach the time when the men can understand that the company for which they work is not represented solely by so many engines and box cars, but is represented by men like themselves, who have an interest in the employees as well as in the revenues, you will have accomplished something that as yet has not entirely been done.

It is useless to denounce the strike as a barbaric method for adjusting disputes so long as there are no more humane methods. We agree that the court of force is an unjust court, but we have not yet found a better one when both sides fail to agree. Railroad employees are not unreasonable. They are willing to go half way at any time, but they realize their necessities and are not slow in endeavoring to provide for them.

The Pot and the Kettle

The public has been diverted in the past few years by public statements made by railroad companies and their employees. The roads have said that transportation employees were extravagantly paid, that they had the easiest positions and the highest pay of any employees in the country, and that further concessions granted them simply meant robbing the public pocketbook, which, in this instance, the railroad companies were quite prepared to protect. The railroad employees have countered by setting forth that the railway companies were extravagantly operated, that because of watered stocks, dishonest management and inefficient operation they were, in very many instances, not showing the revenues they should, and insisting that if they were given honest management, there would be no difficulty in meeting the wage demands of their employees. Whether we agree on all subjects that come between us or not, we must agree that in the public estimation the railroad companies and their employees are not separated. The public accepts both statements as gospel truth and exacts its toll of transportation service at its own price against both of them.

Let us satisfy the public that the railway companies and their employees are not what they have called each other, but that they are exactly the contrary; that they are serving the transportation needs of this country in a more efficient manner than they are being served in any other country in the world; that the railroad companies are efficiently managed; that their employees are giving efficient service, and that both of them are worthy of their hire.

A New Idea in the Merchandising of Ties

ACTING IN THE BELIEF that it is not sufficient to produce and to treat ties strictly in accordance with the best specifications of the day, but that in addition some means must be provided to identify the ties so treated in order to demonstrate the value of these measures and to protect the purchaser from inferior materials or workmanship, the International Creosoting & Construction Company, Galveston, Tex., has adopted the practice of placing a dating nail bearing its trademark and the year of treatment in every tie leaving its plants. This innovation is particularly important to the users of treated timber because of the fact that inferior materials or treatment are detected only after several years, a condition from which the railways have suffered in numerous instances in the past. The identification of each tie marks a step forward in the production of quality ties at the present time, following as it does the policy of this company of producing ties only in strict accordance with the specifications of the American Railway Engineering Association. It also indicates a transition which is taking place in the entire tie producing industry.

The International Company is primarily a treating company with plants at Texarkana, Galveston, and Beaumont, Tex., where it has been operating for more than a quarter of a century. Starting in 1905, it began to produce ties, since which time its operations have developed to the point where it is producing and treating up to three million ties annually.

Fig. 1—Felling a Tree in the Timber

Before a company can afford to place a permanent mark on its product which will identify during its entire life, good or bad, it must perfect its production methods to the point where it can insure satisfactory service. The policy under which this company is operating and which prompts it to thus trademark its product differs sufficiently from that commonly encountered to warrant reference to its methods at some length in these columns. Most important is its acceptance of the A. R. E. A. specifications in their entirety and the exclusion by it of the production of all ties which do not conform to these specifications. This is carried to the point that no ties commonly classed as "serviceable rejects" are accepted at any price.

Fig. 2—Cutting a Tree into Proper Lengths for Ties

In the tie producing area in which this company operates, within a radius of 300 miles of Texarkana, more than 90 per cent of the ties are manufactured by small producers who cut a few at a time and exchange them at the nearest railway siding for their needed supplies. The International organization is comprised of many thousand small producers who

bring their ties out to the siding and turn them over to the local agent of the company, usually the banker or the merchant in the small community. The company takes all the ties this agent can buy, paying him the published prices. Its representatives also aid him in producing ties himself, accompanying him into the woods to look over timber and assisting him in securing help to cut the ties.

Inspectors visit each of these towns weekly and grade all ties, paying cash for all accepted. No ties are accepted for inspection when stacked closely, but it is required that they shall be piled openly so that any defects will be apparent. Each inspector works with a helper and each tie is inspected for its entire length from both ends. Instead of indicating the grade by chalk marks which are soon lost, the grade is

Fig. 3—The Ties Are Hewed Carefully to Dimensions

marked on each tie permanently with paint, which marks the ties carry through the treating cylinder to the track, showing the railways that there has been no regrading after they have been taken up from the small producer. This inspection is made by the use of a measuring rule by men familiar with the characteristics of the timbers in this area and who remain in the same territory from year to year and thus become known to the producers. All ties are purchased from the woodsmen at prices posted publicly so that they can know

Fig. 4—Each Tie Is Inspected Individually and Identified with Permanent Markings

at all times what they will receive. Contrary to the fear expressed in some quarters, the rigid inspection has not been found to discourage production after these small producers learn what is desired. Neither has it been found necessary to resort to the practice of "grading up" ties or increasing the prices above the market of the day in order to get specification ties. The value of an organization such as this, known to and having the confidence of these small producers and paying cash on delivery of the ties, was evidenced during federal control when the International Company was able to buy for and at the request of the government and in competition with it large numbers of ties at a price five cents below that which the government itself was paying in the

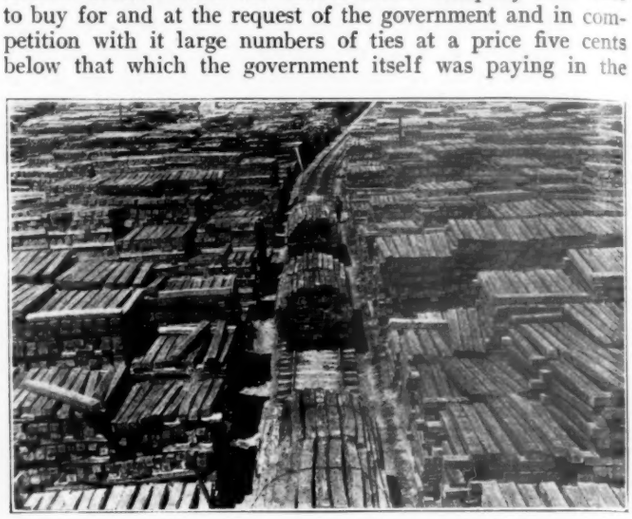


Fig. 5—Ties Are Seasoned in a Yard Free from Vegetation

same territory and which it had posted throughout the woods.

Following acceptance, the ties are loaded onto cars and shipped quickly from the decay-producing conditions of the forest to the treating yard where they are seasoned and treated according to approved standard practices. The interval between the time the ties are cut in the woods and their piling in the seasoning yard at the treating plant is often less than two weeks. At this point storage is provided for 2,500,000 ties which is not only adequate space for the

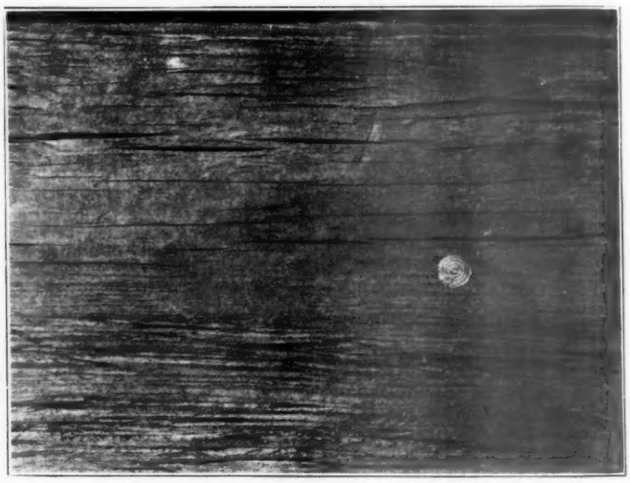


Fig. 6—Every Tie Bears a Dating Nail

seasoning of all ties on order, but also enables the company to accept and store a considerable number of additional ties which it takes from the producers when the roads are buying only limited quantities, thereby tending to stabilize prices and output.

All of these measures are steps in the development of a plan for the merchandising of ties according to a definite system whereby they can be delivered to a road subject to inspection at the point of delivery on a specification which is capable of accurate and uniform interpretation at all times. It is the thought that the permanent identification of the product will make it unnecessary for a road to send inspectors into the woods to pass upon the ties before treatment and into the treating plant to insure that the proper amount of preservative is injected into the timber in the approved

manner, the elimination of this inspection saving the roads at least five cents per tie. In other words, this plan contemplates the sale of a finished product rather than the performance of a service and the dating nail in each tie is a permanent identification mark by means of which the quality of this product can be ascertained at any time.

Labor Board Sustained by Supreme Court

WASHINGTON, D. C.

DECISIONS of the Railroad Labor Board prescribing the methods to be used in the selection of representatives of railroad employees to confer with the management on wages or working conditions are within the jurisdiction and function of the board, although not compulsory, the United States Supreme Court held in a unanimous decision handed down on February 19 in the case of the Pennsylvania Railroad against the Labor Board. The opinion, written by Chief Justice Taft, affirmed the decision of the United States circuit court of appeals for the seventh circuit. The opinion points out that the decisions of the Labor Board can not be enforced by process of law and it can only invoke public opinion by directing "public criticism against the party who, it thinks, justly deserves it."

"The purpose of Congress to promote harmonious relations between the managers of railways and their employees is seen in every section of this act and the importance attached by Congress to conferences between them for this purpose is equally obvious," Chief Justice Taft said. "Congress must have intended, therefore, to include the procedure for determining representatives of employees as a proper subject matter of dispute to be considered by the board under section 301. The act is to be liberally construed to effect the manifest effort of Congress to compose differences between railroad companies and their employees, and it would not help this effort to exclude from the lawful consideration of the Labor Board a question which has so often seriously affected the relations between the companies and their employees in the past and is often encountered on the very threshold of controversies between them.

"The Labor Board was created to decide how the parties ought to exercise their legal rights so as to enable them to co-operate in running the railroads. It was to reach a fair compromise between the parties without regard to the legal rights upon which each side might insist in a court of law. The board is to act as a board of arbitration. It is to give expression to its view of the moral obligation of each side as members of society to agree upon a basis for co-operation in the work of running the railroad in the public interest.

"The only limitation upon the board's decisions is that they should establish a standard of conditions which, in its opinion, is just and reasonable. The jurisdiction of the board to direct the parties to do what it deems they should do is not to be limited by their constitutional or legal right to refuse to do it. Under the act there is no constraint upon them to do what the board decides they should do except the moral constraint, already mentioned, of publication of its decisions.

"It is not for this or any other court to pass upon the correctness of the conclusions of the Labor Board if it keeps within the jurisdiction assigned it by the statute. The statute does not require the railway company to recognize or deal with or confer with labor unions. It does not require the employees to deal with their employers through their fellow employees. But we think it does vest the Labor Board with power to decide how such representatives ought to be chosen with a view to securing a satisfactory co-operation and leaves it to the two sides to accept or reject the decision.

"The statute provides the machinery for conferences, the decisions and the moral sanction. The Labor Board must comply with the requirements of the statute; but having thus complied, it is not in its reasonings and conclusions limited as a court is limited, to a consideration of the legal rights of the parties.

"The propriety of the board's announcement in advance of litigated disputes the rules of decision as to them is not before us except as to Nos. 5 and 15 of Decision No. 119, so far as they determine the methods by which representatives of the employees should be selected. They were applied and followed in the form of ballot prescribed by Decision 218. These decisions were necessary in order that conferences should be properly begun under Section 301 and that disputes there arising should be brought before the board. They were, therefore, not premature. It is not for us to express any opinion on the merits of these principles and decisions. All that we may do in this case is to hold, as we do, that they were within the lawful function of the board to render and, not being compulsory, violated no legal or equitable right of the complaining company. For this reason we think that the district court was wrong in enjoining the Labor Board from proceeding to entertain further jurisdiction from publishing its opinion and that the court of appeals was right in reversing the district court and in directing a dismissal of the appeal."

Authority to Purchase West Side Belt Denied

WASHINGTON, D. C.

THE Interstate Commerce Commission has again denied the application of the Pittsburgh & West Virginia for authority to issue an additional amount of stock to the amount of the net assets of the West Side Belt, approximately $6,400,000, and to assume obligation and liability in respect of the underlying securities of the Belt company in connection with the purchase of its property. Authority to acquire control of the latter property by purchase, under Paragraph 2, Section 5 of the interstate commerce act, was also denied. On December 10, 1921, the commission had denied the company's application to issue $7,400,000 of stock on the ground that the commission's authority for the proposed purchase had not been sought under Section 5. The company later filed an application under Section 5 and asked that the case be reopened for argument. The applicant owns all the stock of the Belt and operates it under a contract. Upon the reargument, its counsel contended that the commission's conclusion that the acquisition could not lawfully be accomplished without its approval was unsound and that Paragraph 2 of Section 5 is permissive rather than mandatory, being in effect an enabling statute to relieve carriers from the operation of state and federal anti-trust and other restraining or prohibitory laws. In the new decision the commission says it is not necessary to pass upon this question nor the question whether the transaction amounts to the consolidation of carriers into a single system for ownership and operation, but the application is denied on the ground that its approval would not be in the public interest because the proposed transaction would result in over-capitalization. An estimate furnished the commission by its Bureau of Valuation showed the value of the properties of both companies to be less than the outstanding capital obligations of the applicant alone, and the report says the company proposes to issue new capital stock approximately $3,000,000 in excess of the value to be received.

Commissioners Potter, Daniels and Lewis dissented from the finding of the majority. Commissioner Potter said that it ignores two important questions which the public interest

urgently calls upon the commission to answer and disposes only of a relatively unimportant question by deciding it the wrong way. He pointed out that the application under Paragraph 2 of Section 5 was made pursuant to the commission's own requirement in its report of December 10, 1921, and that having raised the question and forced its inquiry into prominence, the commission should not now evade the issue. Having required an application under Section 5 as a condition precedent to action upon the application in respect to securities, the present decision that it is not necessary to pass on this question, he says, is tantamount to a reversal of the previous conclusion and the commission should say so and thus put finally at rest an annoying and hurtful uncertainty by recognizing the sanction of state laws. His view is that the commission ought to announce that, upon reconsideration of the subject, it has concluded that it is unnecessary for carriers to apply for authority to acquire control of other carriers under Paragraph 2 of Section 5 or for authority to consolidate under Paragraph 6 of Section 5, when such acquisitions or consolidations are authorized and permitted by existing law, state and federal.

"If we cannot say that, we should say the opposite," he said. "We certainly should decide the question one way or another, and not longer leave everyone in a quandary. A serious question involving conflict between state and national authority is before us. If we hold that Paragraph 2 of Section 5 is mandatory and that until approval of the acquisition of property under that paragraph is obtained, we are not to approve of security issues under Section 20a even when state laws authorize the proposed acquisition, the states may well resent our action. If it had been intended to forbid the acquisition of control of consolidations unless approved or authorized by us, it would have been easy to say so."

Regarding the alleged over-capitalization, Mr. Potter said that the merging of corporate entities or interest cannot reasonably be claimed to effect any change in this condition. Commissioner Lewis also objected to the finding of over-capitalization.

I. C. C. Sustained in New England Divisions Case

WASHINGTON, D. C.

THE DECISION of the Interstate Commerce Commission ordering an increase of 15 per cent in the divisions received by the New England lines (except the Bangor & Aroostook and the Boston & Albany) out of the through rates to and from points west of the Hudson river was sustained in a unanimous decision of the United States Supreme Court on February 19, which adopted a broad construction of the transportation act of 1920 in affirming the decision of the district court for the Southern district of New York. The opinion was written by Justice Brandeis.

As to the contention that the order was void because its purpose was not to establish divisions as between connecting carriers, but in the public interest, to relieve the financial needs of the New England carriers and keep them in effective operation, the court says that an order, regular on its face, may be set aside, if made to accomplish a purpose not authorized, but that the order here assailed is not subject to that infirmity. "The transportation act introduced into federal legislation a new railroad policy. The act sought to insure adequate transportation service. To preserve for the nation substantially the whole transportation system was deemed important. It was necessary to avoid unduly burdensome rate increases and yet secure revenues adequate to satisfy the needs of the weak carriers. To accomplish this, two new devices were adopted: The group system of rate-making and the division of joint rates in the public interest. Through the latter the weak roads were to be helped by preventing needed revenues from passing to their prosperous connections. Thus it was planned to distribute the augmented earnings largely in proportion to the carriers' needs. This, it was hoped, would enable the whole transportation system to be maintained without raising unduly any rate on any line. The provision concerning divisions was, therefore, an integral part of the machinery for distributing the funds expected to be raised by the new rate-fixing sections. It was, indeed, indispensable. The deficiency in income of the New England lines in 1920 was so great that even before the raise in wages ordered by the Railroad Labor Board an increase in freight revenues of 47.40 per cent was estimated to be necessary to secure to them a fair return. On a like estimate the increased revenue required to give the same return to carriers in trunk line territory was only 29.76 per cent and the carriers in Central Freight Association territory 24.31 per cent.

"To have raised the additional revenue needed by the New England lines wholly by raising the rates within New England might have killed New England traffic. Instead of erecting New England into a separate rate group, the commission placed it in the eastern group and ordered that freight rates in that group be raised 40 per cent. At that rate level the revenues of the carriers in trunk line and C. F. A. territory would, it was asserted, exceed by 1.48 per cent what they would have received if they had been a separate group. It was estimated that the excess would be about $25,000,000."

As to the contention that if the act be construed as authorizing such apportionment of a joint rate on the basis of the greater needs of particular carriers, it is unconstitutional, the court said. "There is no claim that the apportionment results in confiscatory rates nor is there in the record any basis for such a contention. It is not true, as argued, that the order compels the stronger roads to support the weak. No part of the revenue needed by the New England lines is paid by the Western carriers. All is paid by the community, pursuant to the single rate increase ordered in Ex Parte 74. The order here in question may properly be deemed a supplement to or a modification of that entered in Ex Parte 74."

Regarding the assertion that Congress did not confer on the commission authority to fix divisions as between groups of carriers without considering the carriers individually, the court says the commission did not base its order on any such theory. The order directs a 15 per cent increase in the divisions to the several New England lines. It is comprehensive, but it is based on evidence which the commission assumed was typical in character and ample in quantity to justify the finding made in respect to each division of each and of every carrier. Obviously, Congress intended that a method should be pursued by which the task it imposed upon the commission could be performed. It was the actual necessity of procedure and administration which had led to the adoption of that method in passing upon the reasonableness of proposed rate increases. The necessity of adopting a similar course when multitudes of divisions were to be passed on was obvious. That there is no substantial obstacle to the adoption of the method pursued is clear.

The court also discusses the assertion that the order directed a transfer of the revenues of carriers west of the Hudson to New England carriers pending a decision in the matter of divisions and that Congress had not granted authority to take such provisional action. Regarding this point it said: "To grant under such circumstances immediate relief, subject to later readjustment, was no more a transfer of revenue pending a decision than was the like action in cases involving general increases in rates a transfer of revenue from the pockets of the shippers to the treasuries of the carriers."

General News Department

Per Diem Rule 5, as revised, and the accompanying revision of the Switching Reclaim Rules, as promulgated by the general secretary of the American Railway Association on December 20, last, are to go into effect on March 1, in accordance with the favorable result of the letter ballot which has just been announced. Of the total membership of the Association, (410) 266 voted in the affirmative, 77 voted no and 67 did not vote. Counting by cars 1,979,679 votes were favorable, 433,403 unfavorable and 122,075 cars were not represented.

New Loan Proposal for Orient

A bill authorizing an extension of an additional loan to the Kansas City, Mexico & Orient was introduced in the House on February 19 by Representative Hudspeth of Texas, who had previously introduced a bill to provide for the postponement for 20 years of payment of the loan of $2,500,000 already made to this road by the Interstate Commerce Commission in the event any purchaser of the road at receiver's sale will give sufficient assurance of efficient and adequate operation of the road for 10 years.

Hearing for Port of New York Plan

The Interstate Commerce Commission has set March 15 as the date for the first hearing on the comprehensive plan of the Port of New York Authority. This hearing will be held at the offices of the Port Authority at 11 Broadway, New York City. The first subject to be taken up will be the acquisition by the Port Authority of what is named in its plan as belt line 13, a belt line made up chiefly of existing trackage following along the shore on the New Jersey side. The roads most directly affected by the proposed belt line 13 are the Lehigh Valley, the Erie and the New York Central. It is expected that Gen. G. W. Goethals, consulting engineer of the Port Authority, will be the first witness.

Severe Weather Slows Down Train Service

The snowstorm accompanied by high winds which swept over the entire country last week, and amounting to a blizzard in the Northwest, virtually paralyzed the railways in the northwest and north central parts of the country. Reports from St. Paul indicated that the operation of trains westbound from that city on Tuesday and Wednesday, February 13 and 14, was practically at a standstill. Eastbound trains were tied up at various towns for many hours. On Wednesday all Pere Marquette trains out of Chicago except the night train to Grand Rapids, Mich., were cancelled and no trains were run on any part of the line north of Grand Rapids. Trains on all roads north of Chicago were hours late at their destinations almost without exception. Reports received on Thursday, February 15, showed that the worst of the storm had passed and conditions were gradually becoming normal.

Railway Earnings for December and the Year 1922

The 193 Class I railroads of the United States in the 12 months of 1922 had a net operating income of $776,421,400, which represented an average return of 4.14 per cent on their tentative valuation, according to reports filed with the Interstate Commerce Commission. The net operating income in the year preceding amounted to $615,945,600, or 3.28 per cent.

Although freight traffic was about 9 per cent heavier in 1922 than in 1921, the operating revenues for the year totaled $5,616,284,800, an increase of 8/10 of 1 per cent over the calendar year 1921, while operating expenses totaled $4,454,939,700, or a reduction of 3.2 per cent under the year before. The ratio of operating expenses to operating revenues was 79.32 per cent, while in 1921 it was 82.61 per cent.

The railroads in the Eastern district had a net operating income in 1922 of $342,749,000, a return of 4.01 per cent as compared with 3.20 in 1921; Southern district $109,718,760, or 5.04 per cent, compared with 2.64 per cent in 1921; Western district $323,953,400 or 4.03 per cent as compared with 3.54 per cent.

The net operating income for the Class I railroads in December was $79,154,900, equal to 5.15 per cent, compared with $49,656,600 or 3.23 per cent during the same month of 1921. Expenditures for maintenance of equipment in December amounted to $116,810,500 or an increase of nearly 25 per cent over those of the year before. In December 42 roads had operating deficits, of which 16 were in the Eastern district, 1 in the Southern and 25 in the Western district. In November 34 reported deficits.

Rock Island Pension Record

The pension system on the Chicago, Rock Island & Pacific has benefited 697 employees during the 13 years of its existence. The system was inaugurated in January, 1910, and is open to every one on the Rock Island payroll who has served 20 years continuously when he reaches the age of 70 years and retires, or who has served 25 years regardless of his age if permanently incapacitated for his duties. Pensions are granted on the basis of one per cent, for each year of service, of the average rate of wages for the last 10 years' service. No pension is less than $20 a month or greater than $150. Of the 697 allowances granted in the 13 years, 404 have been for amounts between $20 and $30 a month, while only nine have been for $150. The average age of the pensioners retired was 66 years 6 months and the average length of service was 33 years 5 months. Since 1910, 247 pensioners have died, each having received an average sum of $918.29 in an average period of 2 years 11 months.

Bonus for Employees of Western Union

The Western Union Telegraph Company has distributed a bonus of $1,775,000 to 35,000 of its 54,000 employees. The award is equivalent to 47½ per cent of each employee's salary for the month of July, 1922. Messenger boys received a flat bonus of $17.50 each.

The company's bonus plan was established in 1920, but there was no distribution in 1921. The company fixes a certain amount each year as its basic quota and half of the net earnings in excess of this figure go to employees. Last year the company fixed $11,500,000 as its basic share of the return on its investment. Total net earnings were $3,550,000 more than this amount. The bonus amounted to half of this excess, or $1,775,000, the other half being reserved for the company.

The length of time employees must have been in the service of the company before they can participate in the payments is also fixed each year. This bonus went to all employees who had worked for the company as long as one year and seven months.

A Record

According to the "Pennsylvania Standard," published by the Pennsylvania Railroad, Charles N. Cromwell, Pumper at Summit, Indiana, on the St. Louis Division, has never missed a day on duty in over 52 years and his locomotive water supply has never failed. He was retired on pension last December after 52 years, four months, and eleven days continuous service.

Mr. Cromwell was born in Indiana and most of his boyhood days were spent in hauling ties and cord wood for the wood burners used in those days on the Terre Haute & Indianapolis. He was employed on July 21, 1870, as a pumper at Reelsville, Ind., and in 1899 was transferred to Summit.

During the 52 years, four months and eleven days of service, he has never missed a pay day and has worked every Sunday and holiday. It is his boast that he never sat down and waited for repairmen from headquarters and that consequently, no engine ever stopped at his station without getting water. He calculates that he has pumped about 780,000,000 gallons of water, enough to fill a tank 16 ft. by 20 ft. 65 miles high.

Operating Statistics of Large Steam Roads—Selected Items for the Month of November, 1922

Region, road and year	Average miles of road operated	Locomotive-miles: Trains miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line daily: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1922 394	312,857	333,900	35,442	5,864	69.8	308,266	130,402	113	28	19.6	...
	1921 394	251,928	273,418	33,417	4,679	65.7	246,283	97,897	114	30	20.8	...
Boston & Maine	1922 2,455	648,098	721,700	66,397	13,875	70.8	716,318	300,274	314	141	31.1	2
	1921 2,469	571,251	641,453	53,972	12,256	67.5	644,718	261,124	327	129	28.3	42
N. Y., New H. & Hartf.	1922 1,974	486,722	522,967	33,195	12,285	71.7	624,085	273,386	282	95	25.2	2
	1921 1,977	444,960	487,025	28,064	11,322	68.9	572,639	242,845	304	84	21.6	37
Great Lakes Region:												
Delaware & Hudson	1922 887	368,141	524,253	38,965	9,443	63.9	634,752	326,302	248	55	18.2	55
	1921 880	347,311	460,788	34,524	8,921	61.9	591,405	293,973	271	45	14.3	104
Del., Lack. & Wn	1922 994	504,976	620,789	118,212	14,292	65.5	872,133	422,102	274	110	28.6	5
	1921 994	523,112	642,243	117,417	15,222	66.0	856,897	392,628	301	62	17.0	11
Erie (inc. Chic. & Erie)	1922 2,309	1,100,290	1,265,791	50,118	38,631	70.0	2,271,720	1,086,324	496	265	34.8	...
	1921 2,259	1,044,876	1,163,869	52,499	31,047	59.6	1,951,171	819,967	574	174	23.3	32
Lehigh Valley	1922 1,317	466,854	519,812	66,193	12,477	70.3	757,039	390,551	293	253	46.3	5
	1921 1,316	610,085	668,662	66,645	16,193	60.8	1,016,758	467,877	428	124	22.4	106
Michigan Central	1922 1,827	578,205	589,947	22,460	19,615	71.4	1,015,639	438,250	280	118	29.6	16
	1921 1,829	477,653	483,669	19,140	13,534	62.9	743,560	287,651	321	91	22.0	83
New York Central	1922 6,486	2,555,259	2,923,462	217,251	88,558	64.3	5,421,912	2,537,112	1,118	635	36.2	9
	1921 6,466	1,941,213	2,172,068	149,558	62,618	61.4	3,733,005	1,621,514	1,125	605	35.0	232
N. Y., Chic. & St. L.	1922 1,225	522,134	527,189	3,803	14,372	72.8	752,040	333,278	153	81	34.6	9
	1921 1,225	432,627	435,634	1,436	11,819	65.5	623,306	248,727	186	63	25.2	58
Pere Marquette	1922 2,182	368,527	385,609	6,976	9,307	75.3	491,391	244,239	154	54	26.1	...
	1921 2,191	359,494	369,593	6,687	8,352	64.3	456,918	213,825	157	51	24.5	4
Pitts. & Lake Erie	1922 228	167,535	172,271	766	6,023	65.5	440,854	258,973	57	21	26.6	...
	1921 228	92,180	96,302	1,036	2,946	60.8	215,420	120,572	64	21	24.9	8
Wabash	1922 2,418	515,786	542,714	7,524	16,276	78.5	825,587	388,213	244	102	29.4	1
	1921 2,418	597,690	622,938	8,540	15,643	68.3	853,848	376,596	276	68	19.7	22
Ohio-Indiana-Allegheny Region:												
Baltimore & Ohio	1922 5,235	2,076,002	2,408,433	158,186	58,384	66.0	3,579,900	1,805,709	1,056	287	21.4	41
	1921 5,185	1,733,929	1,852,404	137,125	41,340	59.7	2,690,055	1,289,523	1,014	359	26.1	199
Central R. R. of N. J.	1922 692	323,041	353,663	41,849	7,085	61.3	468,648	234,119	215	58	21.4	...
	1921 679	273,473	302,599	34,892	5,723	59.5	374,199	179,514	210	48	18.7	8
Chicago & Eastern Ill.	1922 945	245,113	249,374	3,424	6,246	66.9	377,219	195,945	93	81	46.4	7
	1921 1,131	238,636	241,331	3,155	5,436	57.4	343,204	162,614	123	48	28.3	40
Clev., Cin., Chic. & St. L.	1922 2,378	711,875	742,890	11,332	22,321	67.4	1,352,898	670,839	283	151	34.8	...
	1921 2,387	646,289	677,615	4,475	17,231	57.7	1,095,081	499,567	326	121	27.1	43
Elgin, Joliet & Ea.[1]	1922 459	141,723	158,262	10,205	4,261	66.6	327,242	181,862	76	21	22.0	...
	1921 456	94,275	103,436	5,906	2,663	62.8	207,120	108,860	98	10	9.6	30
Long Island	1922 393	49,475	59,062	9,829	631	61.5	36,520	14,638	38	13	25.0	...
	1921 395	46,764	54,059	8,835	532	58.2	30,681	11,779	37	9	19.9	...
Pennsylvania System	1922 10,902	4,802,873	5,318,053	430,239	128,945	67.2	8,495,180	4,400,727	2,452	845	25.6	1
	1921 10,876	4,392,835	4,804,350	365,393	107,908	59.9	7,486,712	3,640,596	2,541	905	26.3	439
Philadelphia & Reading	1922 1,118	687,144	786,176	100,633	18,155	67.4	1,186,478	637,070	338	69	17.0	45
	1921 1,119	542,405	608,540	75,293	12,828	60.0	889,145	455,074	363	78	17.6	136
Pocahontas Region:												
Chesapeake & Ohio	1922 2,551	681,241	745,075	20,313	22,265	64.3	1,562,882	859,754	397	136	25.5	6
	1921 2,548	697,053	770,665	20,134	19,284	54.0	1,512,415	783,803	430	118	21.5	56
Norfolk & Western	1922 2,228	749,635	963,650	34,424	19,183	63.3	1,433,782	785,087	542	156	22.4	38
	1921 2,222	731,130	888,503	32,758	19,359	55.4	1,502,777	788,360	585	115	16.4	164
Southern Region:												
Atlantic Coast Line	1922 4,931	708,098	713,055	13,316	17,170	71.2	863,264	372,260	306	94	23.4	4
	1921 4,911	590,297	595,496	9,655	13,019	63.3	675,534	257,065	290	102	26.1	38
Central of Georgia	1922 1,907	271,305	275,362	4,886	5,752	76.9	293,204	139,667	110	17	13.6	...
	1921 1,899	205,817	206,816	2,873	4,341	70.3	218,906	94,298	111	25	18.6	11
I. C. (inc. Y. & M. V.)	1922 6,135	2,042,543	2,054,473	46,895	57,951	67.7	3,531,536	1,703,708	731	92	11.2	4
	1921 6,151	1,588,526	1,593,930	33,785	40,395	60.8	2,565,099	1,129,507	744	85	10.3	9
Louisville & Nashville	1922 5,021	1,514,654	1,607,675	53,246	26,801	65.1	1,670,680	816,475	550	155	22.0	...
	1921 5,020	1,474,968	1,571,596	56,561	25,045	58.7	1,642,077	758,987	567	93	14.1	11
Seaboard Air Line	1922 3,537	499,166	508,295	11,915	11,228	73.7	577,304	255,152	185	95	33.8	...
	1921 3,537	411,399	419,805	8,222	8,697	68.7	448,770	182,634	169	88	34.1	...
Southern Ry.	1922 6,942	1,564,878	1,612,007	38,031	34,760	70.8	1,820,995	807,030	821	221	21.2	...
	1921 6,942	1,306,749	1,334,024	34,173	27,385	66.1	1,461,568	604,236	869	240	21.6	23
Northwestern Region:												
Chic. & N. Wn.	1922 8,394	1,679,626	1,737,576	26,866	36,072	66.3	2,046,103	922,913	771	265	25.6	...
	1921 8,378	1,418,823	1,453,848	20,843	28,379	61.5	1,623,799	666,755	809	256	24.0	55
Chic., Milw. & St. P.	1922 11,027	1,918,741	1,971,678	79,007	46,126	62.6	2,748,670	1,270,717	810	226	21.2	13
	1921 10,992	1,441,977	1,479,360	61,838	32,948	62.1	1,845,313	790,180	865	216	20.0	118
Chic., St. P., Minn. & Om.	1922 1,726	321,000	338,672	14,648	5,812	67.3	321,913	139,740	146	64	30.3	3
	1921 1,726	289,735	301,342	12,961	5,293	68.3	280,418	114,965	150	62	29.1	30
Great Northern	1922 8,255	1,101,470	1,136,001	51,042	29,266	66.0	1,730,772	827,875	555	212	27.7	7
	1921 8,162	1,058,131	1,090,857	39,690	25,889	59.6	1,577,641	645,216	612	170	21.7	117
Minn., St. P. & S. Ste. M.	1922 4,355	705,671	719,292	14,701	15,005	66.1	802,186	371,044	286	63	18.2	...
	1921 4,359	476,511	510,393	6,612	9,875	68.3	501,684	222,107	298	54	15.3	14
Northern Pacific	1922 6,389	990,881	1,030,492	53,428	25,561	65.1	1,531,615	707,025	563	155	21.6	27
	1921 6,420	886,947	930,477	60,636	21,764	57.2	1,352,897	548,418	568	156	21.6	57
Oreg.-Wash. R. R. & Nav.	1922 2,143	229,830	255,828	34,869	5,122	69.8	300,716	144,099	128	40	23.9	3
	1921 2,150	211,429	234,803	29,868	4,433	66.2	265,961	119,136	127	31	19.6	2
Central Western Region:												
Atch., Top. & Santa Fe	1922 9,798	2,069,229	2,163,609	113,852	56,983	64.5	3,235,822	1,192,198	739	227	23.5	13
	1921 9,812	1,674,716	1,764,495	86,576	40,684	57.8	2,469,852	861,015	773	210	21.4	56
Chicago & Alton	1922 1,010	319,432	324,037	6,849	7,751	71.2	443,889	206,263	106	41	28.0	1
	1921 1,010	343,289	350,688	5,545	6,974	58.6	440,745	201,309	111	42	27.6	5
Chic., Burl. & Quincy	1922 9,326	1,827,271	1,909,139	94,980	49,039	63.0	3,046,678	1,455,747	767	239	23.7	1
	1921 9,326	1,540,827	1,614,689	79,287	36,858	58.0	2,299,461	1,012,633	648	283	30.4	34
Chic., Rock I. & Pacific	1922 7,635	1,320,612	1,344,749	16,560	28,818	70.9	1,538,223	701,447	515	195	27.5	38
	1921 7,661	1,266,820	1,294,523	11,913	25,526	63.9	1,426,884	601,731	593	168	22.1	23
Denver & R. G. Wn.	1922 2,593	322,246	392,013	75,484	6,562	66.4	388,412	182,359	240	117	32.7	...
	1921 2,593	256,257	323,420	64,472	5,163	63.0	297,446	132,214	234	74	24.0	9
Oreg. Short Line	1922 2,367	449,559	467,229	31,141	9,255	58.1	620,490	269,135	166	62	27.1	4
	1921 2,259	383,987	398,548	25,559	8,048	59.1	526,462	226,864	176	56	24.0	16
Southern Pacific	1922 6,982	1,215,195	1,373,453	225,180	35,793	71.9	1,941,632	842,168	603	208	25.7	6
	1921 6,975	1,102,457	1,253,657	216,492	28,164	58.4	1,722,704	649,889	579	189	24.6	13
Union Pacific	1922 3,707	1,481,832	1,522,369	92,442	37,766	67.2	2,159,595	906,399	458	128	21.8	25
	1921 3,661	1,165,449	1,182,791	63,469	28,996	61.4	1,748,586	703,557	415	123	22.8	10
Southwestern Region:												
Gulf, Colo. & S. Fe	1922 1,895	276,239	283,632	6,207	7,422	64.5	418,433	178,225	115	34	22.6	2
	1921 1,895	221,250	227,521	5,247	5,386	60.9	314,679	131,245	126	33	20.7	33
Mo., Kans. & Tex.	1922 1,658	291,201	292,241	6,415	8,308	66.5	455,072	194,147	98	90	47.9	5
	1921 1,709	249,983	250,113	7,234	6,272	56.6	373,886	142,276	130	49	27.6	44
Mo., Kans. & Tex. of Tex.	1922 1,738	223,283	228,121	3,804	4,727	69.7	248,000	103,680	78	72	48.0	4
	1921 1,740	216,858	221,554	3,834	4,440	61.6	252,062	98,637	95	43	31.4	10
Missouri Pacific	1922 7,111	965,310	973,375	32,320	23,609	74.4	1,284,243	614,043	367	218	37.3	...
	1921 7,264	1,051,052	1,060,530	30,863	24,075	64.4	1,394,190	608,194	393	178	31.2	2
St. Louis-San Francisco	1922 4,683	747,916	757,084	15,702	13,427	69.0	738,558	333,281	322	134	29.4	...
	1921 4,683	759,036	767,597	11,324	13,313	63.3	758,028	322,364	354	100	22.1	14
Southern Pacific Lines[2] (in Tex. and La.)	1922 3,710	643,568	646,959	8,340	14,543	67.4	801,013	349,056	196	102	34.1	2
	1921 3,680	570,021	572,715	7,362	10,654	60.3	676,080	284,347	203	101	33.3	4
Texas & Pacific	1922 1,953	286,518	286,525	7,061	7,206	73.5	370,092	161,087	116	94	44.7	1
	1921 1,953	282,278	282,278	2,168	5,897	62.2	329,435	125,075	123	81	39.9	2

[1]No passenger-train service. [2]See Note 1 on opposite page.

Compiled by the Bureau of Statistics of the Interstate Commerce Commission. Subject to revision

Compared with November, 1921, for Roads with annual Operating Revenues above $25,000,000.

Region, road and year	Average number of freight cars on line daily: Home	Foreign	Total	Per cent unserviceable	Stored	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotive and tender	Passenger service: Train-miles	Passenger-train car-miles
New England Region:														
Boston & Albany.....1922	1,759	7,696	9,455	3.6	....	985	417	22.2	460	29.6	11,034	233	299,218	1,896,333
1921	3,154	5,133	8,287	7.2	700	978	389	20.9	394	28.6	8,284	217	297,481	1,903,600
Boston & Maine.....1922	12,720	24,113	36,833	12.2	....	1,105	463	21.6	272	17.7	4,076	185	795,887	4,290,974
1921	16,710	17,047	33,757	18.8	....	1,129	457	21.3	258	17.9	3,526	150	789,055	4,302,136
N. Y., N. H. & H.....1922	16,854	34,232	51,086	17.8	....	1,282	562	22.3	178	11.2	4,617	197	992,979	6,357,100
1921	22,002	19,196	41,198	21.6	152	1,287	546	21.4	196	13.3	4,095	164	1,022,853	6,442,298
Great Lakes Region:														
Delaware & Hudson.....1922	8,268	10,474	18,742	7.0	....	1,724	886	34.6	580	26.3	12,263	228	187,130	972,961
1921	9,043	6,787	15,830	9.6	262	1,703	846	33.0	619	30.4	11,130	195	185,409	921,931
Del., Lack. & Western...1922	10,838	13,080	23,918	5.6	54	1,727	836	29.5	588	30.4	14,154	216	471,424	3,392,582
1921	15,019	8,630	23,649	13.3	....	1,638	751	25.8	553	32.5	13,166	187	480,303	3,391,054
Erie (inc. Chic. & Erie)..1922	21,940	38,782	60,722	10.3	....	2,065	987	28.1	596	30.3	15,680	154	563,350	4,079,393
1921	36,174	21,057	57,231	19.1	2,604	1,867	785	26.4	478	30.3	12,101	156	657,195	4,676,964
Lehigh Valley 1922	22,633	18,456	41,089	6.7	....	1,622	837	31.3	317	14.4	9,887	217	338,059	2,601,077
1921	27,600	10,033	37,633	15.2	1,281	1,667	767	28.9	414	23.6	11,848	174	347,786	2,567,021
Michigan Central 1922	7,352	20,288	27,640	7.1	....	1,757	758	22.3	529	33.1	7,998	136	557,106	5,196,758
1921	17,377	17,201	34,578	19.1	....	1,557	602	21.3	277	20.7	5,241	145	565,818	5,071,190
New York Central.....1922	52,811	106,649	159,460	10.5	....	2,122	993	28.6	530	28.8	13,040	134	2,399,209	19,313,193
1921	85,671	57,233	142,904	22.0	9,837	1,923	835	25.9	378	23.8	8,360	133	2,362,123	18,308,589
N. Y., Chic. & St. L....1922	2,865	12,512	15,377	12.2	....	1,440	638	23.2	722	42.8	9,065	147	146,030	769,311
1921	5,963	8,269	14,232	15.0	969	1,441	575	21.0	583	42.3	6,766	126	144,936	666,389
Pere Marquette 1922	5,816	17,144	22,960	9.8	....	1,333	663	26.2	355	18.0	3,732	163	254,723	1,274,107
1921	9,935	13,837	23,772	16.2	750	1,271	595	25.6	300	18.2	3,253	161	285,180	1,413,190
Pitts. & Lake Erie.....1922	8,860	12,543	21,403	25.3	....	2,631	1,546	43.0	403	14.3	37,875	76	112,189	582,513
1921	18,042	9,456	27,498	42.5	1,370	2,337	1,308	40.9	146	5.9	17,634	93	106,647	550,035
Wabash 1922	6,307	15,305	21,612	5.4	....	1,601	753	23.9	599	32.0	5,352	165	410,750	2,428,127
1921	11,485	12,621	24,106	11.7	649	1,429	630	24.1	521	31.7	5,192	168	514,098	2,729,478
Ohio-Indiana-Allegheny Region:														
Baltimore & Ohio.....1922	47,472	68,224	115,696	10.0	....	1,724	870	30.9	520	25.5	11,497	210	1,290,592	8,519,614
1921	62,407	36,065	98,472	12.7	10,063	1,551	744	31.2	437	23.5	8,291	200	1,368,316	8,805,065
Central R. R. of N. J...1922	11,643	16,681	28,324	6.2	....	1,451	725	33.0	276	13.6	11,283	207	321,452	1,563,231
1921	17,818	9,037	26,855	11.5	5,029	1,368	656	31.4	223	11.9	8,819	179	314,610	1,533,177
Chicago & Eastern Ill...1922	9,596	6,614	16,210	18.1	....	1,539	799	31.4	403	19.2	6,911	200	203,076	1,328,964
1921	13,334	3,782	17,116	15.7	2,500	1,438	681	29.9	317	18.4	4,793	184	220,812	1,457,199
Clev., Cin., Chic. & St. L.1922	9,688	26,753	36,441	10.9	....	1,900	942	30.1	614	30.3	9,404	141	690,735	4,137,086
1921	15,220	19,417	34,687	10.7	8,302	1,694	773	29.0	481	28.7	6,977	142	667,319	4,196,908
Elgin, Joliet & En.[1].....1922	8,551	5,893	14,444	9.5	....	2,309	1,283	42.7	420	14.8	13,203	131	.....	.....
1921	9,572	4,259	13,831	8.3	534	2,197	1,155	40.9	262	10.2	7,952	136	.....	.....
Long Island 1922	1,610	5,876	7,486	2.9	....	738	296	23.2	65	4.6	1,241	343	181,820	1,051,084
1921	1,935	4,581	6,516	5.1	146	656	252	22.1	60	4.7	995	346	184,531	1,011,356
Pennsylvania System ...1922	146,273	143,679	289,952	8.5	3,967	1,769	916	34.1	506	22.1	13,456	170	5,000,148	34,783,650
1921	206,215	78,864	285,079	12.7	26,733	1,704	829	33.7	426	21.1	11,157	153	4,942,078	33,060,992
Philadelphia & Reading..1922	13,056	24,018	37,074	4.2	....	1,727	927	35.1	573	24.2	19,003	190	488,784	2,241,906
1921	24,425	14,735	39,160	4.5	1,802	1,639	839	35.5	387	18.2	13,551	183	477,101	2,251,520
Pocahontas Region:														
Chesapeake & Ohio.....1922	30,970	20,191	51,161	11.4	....	2,294	1,262	38.6	560	22.6	11,236	147	431,048	2,491,041
1921	38,297	13,874	52,171	10.9	....	2,170	1,125	40.6	501	22.8	10,254	144	432,333	2,415,194
Norfolk & Western.....1922	25,642	14,950	40,592	3.9	....	1,913	1,047	40.9	645	24.9	11,747	238	396,674	2,512,587
1921	29,758	7,749	37,507	7.2	645	2,055	1,078	40.7	701	31.0	11,827	190	397,711	2,505,571
Southern Region:														
Atlantic Coast Line.....1922	12,481	15,600	28,081	14.7	....	1,219	526	21.7	442	28.6	2,517	136	737,643	4,853,315
1921	21,936	9,597	31,533	15.5	....	1,144	435	19.7	272	21.7	1,745	139	750,886	4,848,203
Central of Georgia.....1922	1,724	6,100	7,824	7.1	....	1,081	515	24.3	595	31.9	2,442	190	314,278	1,591,681
1921	4,192	3,318	7,510	14.9	....	1,064	458	21.7	419	27.4	1,655	153	301,875	1,540,356
I. C. (inc. Y. & M. V.)..1922	24,888	40,019	64,907	5.7	1,610	1,729	834	29.4	875	43.9	9,257	154	1,426,962	8,477,204
1921	39,022	24,945	63,967	6.5	6,225	1,615	711	28.0	589	34.6	6,121	154	1,392,331	8,105,275
Louisville & Nashville....1922	23,221	27,336	50,557	11.3	38	1,103	539	30.5	538	27.2	5,420	193	987,094	5,784,349
1921	36,920	15,437	52,357	21.5	91	1,113	515	30.3	483	27.2	5,040	181	928,849	5,361,007
Seaboard Air Line.....1922	9,815	14,068	23,883	26.5	....	1,157	511	22.7	356	21.3	2,404	185	530,207	3,240,349
1921	12,088	8,952	21,040	28.0	....	1,091	444	21.0	289	20.1	1,721	194	551,622	3,306,370
Southern Ry. 1922	24,496	37,351	61,847	11.3	....	1,164	516	23.2	435	26.4	3,875	218	1,257,301	7,299,050
1921	37,090	25,071	62,161	11.1	4,055	1,118	462	22.1	324	22.2	2,901	215	1,259,757	7,454,198
Northwestern Region:														
Chic. & North Western..1922	32,270	36,883	69,153	7.8	....	1,218	549	25.6	445	26.2	3,665	184	1,403,330	9,008,595
1921	42,644	26,501	69,145	7.0	9,000	1,144	470	23.5	321	22.2	2,653	192	1,576,872	9,591,038
Chic., Mil. & St. P.....1922	36,554	36,000	72,554	10.5	....	1,433	662	27.5	584	33.9	3,841	171	1,428,040	8,667,545
1921	45,894	27,096	72,990	16.8	....	1,280	548	24.0	361	24.2	2,396	184	1,471,743	8,889,891
Chic., St. P. M. & O....1922	2,152	8,426	10,578	9.4	....	1,003	435	24.0	440	27.2	2,698	190	273,653	1,674,212
1921	3,582	11,512	15,094	12.3	1,264	968	397	21.7	254	17.1	2,220	188	301,776	1,724,668
Great Northern 1922	33,869	10,468	44,337	7.2	....	1,571	752	28.3	622	33.3	3,343	183	932,533	5,661,097
1921	41,039	13,487	54,526	8.9	....	1,491	610	24.9	394	26.6	2,635	186	973,310	5,751,610
Minn., St. P. & S. Ste M.1922	15,052	8,461	23,513	7.1	24	1,137	526	24.7	526	32.2	2,840	139	420,781	2,443,965
1921	19,358	5,512	24,870	11.7	1,759	1,053	466	22.5	298	19.4	1,698	171	417,311	2,437,583
Northern Pacific 1922	24,008	9,026	33,034	9.5	....	1,546	714	27.7	713	39.6	3,689	143	776,843	5,098,694
1921	34,076	11,972	46,048	10.4	1,295	1,525	618	25.2	397	27.5	2,848	147	821,488	5,384,620
Ore.-Wash. R. R. & Nav..1922	3,639	3,135	6,774	3.3	....	1,308	627	28.1	709	36.1	2,241	258	248,911	1,639,344
1921	5,869	4,409	10,278	2.4	776	1,258	563	26.9	386	21.7	1,847	258	236,985	1,584,455
Central Western Region:														
Atch., Top. & Santa Fe..1922	36,605	30,655	67,260	4.5	65	1,564	576	20.9	591	43.8	4,056	162	1,689,677	13,253,568
1921	47,194	14,365	61,559	8.0	9,682	1,475	514	21.2	466	38.1	2,925	157	1,653,937	12,647,449
Chicago & Alton.....1922	5,877	9,267	15,144	8.6	....	1,390	646	26.6	454	24.0	6,806	209	256,776	1,537,199
1921	9,403	6,282	15,685	3.5	1,987	1,284	586	28.9	429	25.3	6,642	197	283,198	1,622,905
Chic., Burl. & Quincy....1922	34,388	37,001	71,389	6.9	96	1,667	797	29.7	680	36.4	5,203	181	1,433,475	9,319,220
1921	45,229	24,386	69,615	8.6	1,200	1,492	657	27.5	485	30.4	3,619	186	1,487,477	9,495,433
Chic., Rock Is. & Pac...1922	19,961	22,948	42,909	10.9	40	1,165	531	24.3	545	31.6	3,062	201	1,237,197	7,046,652
1921	26,745	19,267	46,012	10.5	3,840	1,126	475	23.6	436	28.9	2,618	191	1,265,216	7,239,948
Denver & R. G. W.....1922	10,284	6,142	16,426	9.9	376	1,205	566	27.8	370	20.0	2,344	276	220,542	1,535,405
1921	12,244	5,312	17,556	9.9	1,136	1,161	516	25.6	251	15.6	1,699	247	222,170	1,492,132
Oreg. Short Line.....1922	5,751	5,526	11,277	5.3	....	1,380	599	29.1	796	47.1	3,790	160	274,917	1,955,199
1921	7,405	5,696	13,101	3.9	1,135	1,371	591	28.2	577	34.6	3,206	155	271,500	1,945,852
Southern Pacific 1922	17,308	18,973	36,281	5.8	....	1,598	693	23.5	774	45.6	4,020	159	1,299,280	10,681,784
1921	22,372	18,602	40,974	6.5	2,230	1,563	589	23.1	529	39.1	3,106	160	1,267,776	10,143,795
Union Pacific 1922	11,642	16,357	27,999	4.9	33	1,457	612	24.0	1,079	66.9	8,149	186	836,769	6,832,959
1921	14,818	10,232	25,050	6.4	3,177	1,500	604	24.3	936	62.8	6,406	174	877,975	6,907,116
Southwestern Region:														
Gulf, Colo. & S. Fe.....1922	5,554	7,071	12,625	3.7	77	1,515	652	24.0	471	30.4	3,136	151	192,602	1,150,291
1921	7,300	4,905	12,203	4.3	917	1,422	593	24.4	359	24.2	2,309	146	188,233	1,088,557
Mo., Kans. & Tex.....1922	6,948	10,716	17,664	7.7	....	1,563	667	23.4	366	23.6	3,902	160	247,506	1,911,157
1921	7,542	6,596	14,138	7.5	2,964	1,496	569	22.7	335	26.1	2,714	142	263,607	1,964,204
Mo., Kans. & Tex. of Tex.1922	350	12,188	12,538	8.7	....	1,111	464	21.9	276	18.0	1,988	191	207,067	1,395,213
1921	302	13,148	13,450	4.8	2,370	1,162	455	22.2	244	17.9	1,890	173	262,168	1,628,904
Missouri Pacific 1922	19,431	34,769	54,200	8.2	....	1,330	636	26.0	378	19.5	2,879	182	929,550	5,399,929
1921	29,444	24,723	54,167	8.3	3,418	1,326	579	25.3	374	23.0	2,791	171	901,920	5,406,175
St. Louis-San Francisco..1922	12,828	22,832	35,660	6.8	....	987	446	24.8	312	18.2	2,372	231	682,757	3,856,148
1921	18,920	13,124	32,044	7.5	....	999	425	24.2	335	21.9	2,294	207	752,411	4,239,218
Southern Pacific Lines[1]..1922	5,624	18,090	23,714	6.2	....	1,245	542	24.0	491	30.3	3,136	145	527,723	3,506,976
(in Tex. and La.)....1921	8,320	18,109	26,429	14.6	1,371	1,186	499	26.7	359	22.3	2,576	145	525,512	3,390,129
Texas & Pacific.....1922	3,922	12,124	16,046	12.4	....	1,292	562	22.4	335	20.4	2,750	189	279,732	1,800,091
1921	5,058	7,863	12,921	17.7	....	1,167	443	21.2	323	24.5	1,135	169	291,525	1,887,116

[1]Includes Galveston, Harrisburg & San Antonio, Houston & Shreveport, Houston & Texas Central, Houston East & West Texas, Iberia & Vermilion, Lake Charles & Northern, Louisiana Western, Morgan's La. & Tex. R. R. & S. S. Co., and Texas & New Orleans.

Cars and Locomotives Ordered

Orders placed by the railroads for freight car equipment up to February 1 called for the delivery of 91,354 cars, according to reports filed by the carriers with the Car Service Division of the American Railway Association. Orders for 23,022 freight cars were placed in January this year, while the remaining represented cars ordered but not delivered during the calendar year 1922. Coal cars under order on February 1 totaled 37,476 of which orders for 13,258 cars were placed in January. The remaining number constituted cars ordered but not delivered in 1922. Box cars on order numbered 43,211, of which orders for 7,594 were placed in January. Reports also showed that 2,082 refrigerator cars were also ordered last month, bringing the total number ordered but undelivered on February 1 to 6,402.

Locomotives on order on February 1 totaled 1,507 compared with 1,445 on January 1 last, or an increase of 62 for the month. Of the total number of locomotives on order, freight locomotives numbered 1,022, passenger 362 and switching, 123.

Progress in Proposed Reorganization of St. Louis Railroad Facilities

The Terminal Railroad Association of St. Louis has announced that it stands ready to proceed with its part of the plans of the terminal committee of the St. Louis Chamber of Commerce for the complete reorganization of the railroad facilities of the "Greater St. Louis" district—St. Louis, East St. Louis, Madison, Venice and Dupo. The plan of the Terminal Committee was reported fully in the *Railway Age* of July 18 last, page 63. It is estimated that the project will cost approximately $150,000,000 when finally consummated. The whole scheme is subject to ratification by the city of St. Louis.

The plan contemplates the revision of the present method of utilizing the Mississippi River bridge by withdrawing rail traffic from the Eads Bridge using instead the Merchants' and the municipal bridges; by increasing the facilities of the Union Station and by unifying the classification and interchange of freight cars. If the city authorizes the use of the municipal bridge by the railroads the roads propose to expend $15,000,000 at once to construct six approaches to this bridge so that it can be used for both passenger and freight trains. The railroads further agree to build a new union passenger station in East St. Louis and to replace the present train shed at the St. Louis Union Station with Bush or Umbrella type sheds and to inclose the concourse of the station. The construction of additional freight facilities is also approved. The railroads have agreed, moreover, to make an immediate study of the interchange and classification yards with a view to the establishment of a few such yards to replace the 45 existing ones.

Inspection of Forest Products Laboratory

The Forest Products Laboratory, Madison, Wis., has invited the members of the American Railway Engineering Association and of the American Wood Preservers' Association and others interested in timber and its preservation, to attend an all-day conference at the laboratory on Friday, March 16, the day following the close of the convention of the American Railway Engineering Association. The laboratory is spending over $50,000 a year in research work on wood preservation and allied subjects. The conference has been planned to familiarize the members of these associations with the work which it is doing and is capable of doing and to secure suggestions regarding future activities.

The program for the conference has been arranged tentatively as follows:

8:00-10:00—Inspection of Forest Products Laboratory.

10:00-12:00—Discussion on toxicity tests and demonstrations of methods. Discussion of grading rules for structural timbers.

12:00- 1:00—Lunch.

1:00- 2:00—Crushing test of a 12-in. by 12-in. by 24-ft. southern pine column in the 1,000,000 lb. testing machine of the timber testing laboratory.

2:00- 4:30—Discussion of the mixing of creosote and petroleum oils.

4:30- 6:30—Weather permiting, an inspection will be made of the test track maintained co-operatively by the laboratory and the Chicago, Milwaukee & St. Paul.

6:30—Dinner, followed by general discussion of the program of investigative work on wood preservation and allied problems.

All sections of the laboratory will be open to inspection during the day and demonstrations will be made of various types of work conducted at the laboratory.

A. R. E. A. Program

The following is the tentative program for the convention of the American Railway Engineering Association which will be held at the Congress hotel on March 13-15 inclusive. The morning sessions will begin at 9:30 o'clock and the afternoon sessions at 2 o'clock.

FIRST DAY, TUESDAY, MARCH 13

President's Address
Report of Secretary and Treasurer
Reports of Standing and Special Committees on
- Shops and Locomotive Terminals
- Signals and Interlocking
- Standardization
- Rail
- Ballast
- Signs, Fences and Crossings
- Masonry
- Iron and Steel Structures
- Water Service

SECOND DAY, WEDNESDAY, MARCH 14

Reports of Standing and Special Committees on
- Ties
- Economics of Railway Location
- Economics of Railway Labor
- Stresses in Railroad Track
- Track
- Economics of Railway Operation
- Rules and Organization
- Roadway

THIRD DAY, THURSDAY, MARCH 15

Reports of Standing and Special Committees on
- Uniform General Contract Forms
- Electricity
- Buildings
- Wooden Bridges and Trestles
- Records and Accounts
- Yards and Terminals
- Wood Preservation

New Business, election and installation of officers.
Adjournment.

New Highway Grade Crossing Regulations in Illinois

Where gates are in use they shall be maintained for a 24-hr. period, except in cases where it is absolutely certain that there will be no traffic on the railroad for a period of at least six hours in a 24-hr. period, in which case the gates may be left unattended for that interval. The above is one of the provisions contained in an order known as General Order 106, which has just been issued by the Illinois Commerce Commission relative to the construction, maintenance and protection of grade highway crossings in the state and the removal of obstructions to the view of approaching trains and which were effective as of January 1, 1923.

This order also incorporates a rule regarding the construction of crossings. Within 60 days from the time the order is effective the railroads are required to reconstruct every existing highway grade crossing at an intersection of its tracks with an improved hard road, while within 12 months every existing grade crossing other than an improved hard road crossing shall be reconstructed to conform to the commission's order. The commission specifies that the grade of the approaches shall not exceed one per cent for the first 25 ft. each way from the track rails. Beyond this distance the approaches within the right-of-way lines shall be on grades not to exceed 3 per cent. The commission requires that obstructions to the view on the railroad right-of-way shall be removed for a distance of not less than 500 ft. in each direction and recommends that each highway commissioner have all obstructions to

the view along the highway removed within a distance of 300 ft. on each side of the crossing.

This general order states that the standard crossing signs shall have painted on each side in capital letters at least nine inches in size the words, "RAILROAD CROSSING" or "LOOK OUT FOR THE CARS." At each hazardous crossing stop signs shall be erected by the railroad on orders of the commission while the highway commissioners shall erect approach warning signs at such locations at a distance of 300 ft. and located not less than 3 or more than 5 ft. from the traveled or graded portions of the highway. The distance at which a locomotive whistle is to be sounded is specified as is the location of whistle posts for this purpose.

President Not Authorized to Sell Carriers' Obligations Held as Collateral

An opinion that the President is not authorized by Section 202 of the transportation act to sell the obligations of carriers held by the United States Treasury as collateral for the loans under Section 210 of the act has been furnished to the Secretary of the Treasury by A. T. Seymour, acting attorney general. The opinion was given in response to a letter from the Treasury Department dated several months back. The opinion points out that the legal situation of the obligations acquired under Section 210 is very different from that of the obligations of carriers acquired by the director general of railroads under the federal control act, as to which the attorney general gave an opinion last May that the power to sell such securities is a necessary incident of the power to liquidate matters arising out of federal control. The opinion states that the new loans contemplated by Section 210 and the obligations of the carriers received therefor are not matters arising out of or incident to federal control and that the President has not been clothed with any power with respect thereto.

Suits Against Railroad Administration

A. A. McLaughlin, general solicitor of the Railroad Administration, has addressed a circular to the railroads whose properties were under federal control, calling attention to the fact that on January 1 approximately 16,000 suits involving approximately $80,000,000 were pending in the various courts of the United States against the Railroad Administration. During the nine months' period ending December 31, approximately 5,000 suits involving $15,000,000 were disposed of by settlement of judgment. Mr. McLaughlin asks for an earnest effort on the part of the carriers in co-operation with the government to finally dispose of this litigation during the current year.

"Many of the carriers have made very satisfactory progress in disposing of suits in their charge, justifying the hope that their litigation can be practically disposed of by the end of the current year, the circular said, but many of the carriers, on the contrary, have made very little progress, and unless much more rapid progress is made in the future, years will be consumed in winding up the government's litigation. It is deemed of vital importance to the government, the carriers and claimants, that all suits pending against the government should be disposed of by adjustment or trial at as early a date as is reasonably compatible with the doing of justice to all parties concerned. It is not desired that the interest of the government be sacrificed through haste, involving payment of excessive amounts in settlement, or through forcing cases to trial that would otherwise be abandoned. It is desired that a very earnest effort be made by all carriers to expedite the final disposition of all government suits to the extent that same can be done without undue disadvantage to the government.

A vast number of claims in favor of the government, aggregating millions of dollars remain uncollected. While it is not believed that state statutes of limitation apply to such claims, it is desired that all such claims be sued before the limitation provided in such statutes expires. All claims in the hands of the accounting department of the carriers should now be placed in the hands of the law departments for immediate suit, the circular says, unless assurance of prompt payment is given. All claims now or hereafter in the hands of the law department of the carriers should be promptly sued, unless in doubt as to the validity of a claim, or insolvency of the debtor, in which event all such claims should be promptly referred to the comptroller of the Railroad Administration for advice.

Traffic News

The Erie Railroad has increased its accommodations for suburban passengers to and from New York City by the purchase of 14 Pullman sleeping cars which have been converted into day coaches and are now being put in service. The cars will seat 84 passengers each.

Transcontinental Roads Reduce Freight Rates to Pacific Coast

Western transcontinental roads agreed on a new schedule of rates on certain products at a meeting in Chicago on February 17, which reductions will be extended eventually to include practically all articles in which the manufacturers of the Middle West compete with those in the East for west coast business. These reductions are made to offset the increased movement of freight through the Panama Canal. They will also give manufacturers in the Middle West a better opportunity to compete with eastern industries by removing the eastern manufacturer's advantage through use of the Panama Canal.

The present changes were considered at a meeting of the Pacific lines in December and were then opposed by some midwestern shippers who feared that the proposed changes would give advantage to eastern manufacturers as the reductions from proposed eastern points were greater than from the Middle West to territory intermediate to the Pacific coast. Eastern carriers also objected and the reductions were held up. The Atchison, Topeka & Santa Fe, on January 24, announced proposed reductions effective on that line from Chicago and points taking the same rates and from all territories west of Chicago but withheld further action until the rates could be discussed further by the various carriers and shippers interested. Definite action approving these reductions was then taken on February 17.

For the present the proposed rates will be confined to Chicago territory and west but consideration will later be given to rates from points east of Chicago. The rates will be effective on statutory notice.

The following table showing the present and proposed rates has been furnished by the Santa Fe:

	Present	Proposed
Ammunition	$1.73	$1.40
Bottles, fruit jars, etc.	1.30	1.15
Brass, bronze and copper goods	2.40	1.85
Canned goods	1.35	1.05
Cash registers	3.63½	3.00
Caustic soda, etc.	1.35	1.00
Copper wire, etc.	1.35	1.20
Cotton waste	1.65	1.25
Drugs and chemicals	2.48	2.10
Glass, rough rolled	2.10	1.58
Heating apparatus	1.50	1.30
Lard and lard substitutes	2.10	1.16
Linseed oil	1.35	1.10
Paints	1.35	1.25
Pipe fittings and connections	1.35	1.00
Pole line construction material	1.35	1.20
Plate glass	2.36	1.58
Refrigerators	2.25	2.00
Roofing material	1.42½	1.10
Rubber tires	3.67½	2.50
Soap, washing compound, etc.	1.42½	1.25
Soda fountain fixtures (new item)	....	3.00
Starch	1.50	1.20
Talking machines	3.00	2.50
Tri-sodium phosphate	1.35	1.10
Twine and cordage	1.35	1.25
Water heaters, gas	2.77½	2.20
Window glass	1.58	1.30

In addition marked reductions will be made on paper and various articles of paper manufacture. Practically all of the rates on iron and steel articles come in for heavy steel reductions, the new rates ranging from $1 on the heavier loading articles to $1.30 for the more highly finished and lighter loading material.

Further effort will also be made to secure fourth section relief which has recently been denied.

Commission and Court News

Court News

Use of Track Insufficient to Constitute License

To convert trespassers on a track into licensees, it is necessary that the track be habitually used by the public in such large numbers that the presence of persons on the track should be anticipated. The Kentucky Court of Appeals holds that the use of a track by 30 persons a day, or even a much larger number, would not convert them into licensees to whom precautionary duties are due.—L. & N. v. Banks (Ky.) 243 S. W. 1018.

Railroad as Warehouseman Liable for Keeping Goods in Leaky Car at Destination

Although a bill of lading gives the railroad the option, should its liability change to that of warehouseman, to keep the goods in a car or remove them to a freight house or a public warehouse, the Texas Commission of Appeals holds that it will be liable in damages resulting from negligently keeping them in a leaky car.—Hines v. First Guaranty Bank (Tex.) 243 S. W. 972.

Freight at Non-agency Stations O. R.

The Alabama Supreme Court holds that under an interstate bill of lading providing that property destined to a station at which there is no agent, when delivered on siding, shall be at owner's risk after detachment from trains, the risk is not dependent on the consignor or consignee being informed beforehand that the destination is a non-agency station, or that the delivery will be made on a side track. The courts cannot read these conditions into the agreement.—Tamsett v. Hines (Ala.), 91 So. 788.

Liability for Full Value of Passenger's Baggage Before It Is Checked

The Alabama Supreme Court holds that where a terminal station company lost a prospective passenger's trunk before she appeared to check it to her destination, the company was liable for the full value of the property, notwithstanding a rule limiting liability to $100 unless a greater value was declared, the trunk having been lost before the value could have been declared.—Birmingham Terminal Co. v. Thomas (Ala.) 92 So. 803.

Right to Abandon Service and Sell Railroad

The federal district court for the Western District of Texas holds that, since a railroad cannot be required to operate at a loss, where there is no adequate public patronage or prospect thereof, it may dismantle and dispose of its line. A state statute requiring the railroad to continue operation from day to day is effective only while the public is making use of the company's facilities to such an extent as will enable it to operate from day to day.—State of Texas v. Eastern Texas Railroad, 283 Fed. 584.

Period of Limitation of Actions Under Uniform Live Stock Contract

A uniform live stock shipping contract expressly provided that the shipper should at his own risk and expense load and take care of, feed and water the stock, whether delayed in transit or otherwise, the caretaker to ride free. The Indiana Appellate Court holds that the fact that the railroad or its agent knew that the shipper would not and did not accompany the shipment, could not modify or waive the terms of the contract. Under such contract the railroad assumed no liability or duty except in the actual transportation. Its terms could not be modified or waived in the interest of any one shipper, to do so would be discrimination, void as against public policy.—Herran v. Chicago & Erie (Ind. App.), 135 N. E. 253.

Foreign Railway News

Thirty-Nine Killed in Ceylon Accident

According to press dispatches from Colombo, Ceylon, a derailment in the northern part of the country on January 26 resulted in the death of 39 persons. The derailment was said to be due to a washout.

The Railway Strike in the Ruhr

Some 1,200 striking German railway employees have asked the French to employ them in the new transport organization which the French army has built up to operate the railways in the occupied zone. The French have not as yet been able to gain the consent of the British to operate German trains manned by French through the territory occupied by the British.

Railroads in the Philippines

By Vicente Villamin

There are three railway systems in the Philippines, each located on a different island, with a total mileage of 777 actually in operation. The natural division of the country into a great many islands and the consequent development of water transportation, the heavy demand on local capital and enterprise by rapidly-developing agricultural industries and the comparative newness of the country as an investment field are the principal reasons why there is not a more extensive railway system.

The Philippine Railway is an American concern chartered in perpetuity in 1906 under the laws of Connecticut which owns and operates two systems, one on Panay island, 72 miles, and the other on Cebu island, 59 miles. Its equipment consists of 15 locomotives, 52 passenger cars, 201 freight cars and 6 construction cars. The line is of 42-in. gage, the rail is 60 and 70 lb., the road-bed is ballasted with broken stone and sand and the ties are of good quality Philippine wood. Frequent slides on high rice paddy fills and wash-outs after torrential rains cause substantial damage. The line carries about 2,000,000 passengers a year and 120,000 tons of freight. The two islands served are among the richest regions in the archipelago. The Philippine government guarantees the payment of interest on the bonded indebtedness of the company and grants it tax advantages.

The Manila Railroad is the most important line, with 646 miles of main line in operation. It was originally owned by an English concern which acquired the concession to build a road on the island of Luzon in 1887. The concession given by the Spanish government guaranteed 8 per cent interest on a capital outlay fixed at $2,482,237. The amount expended, however, greatly exceeded the estimate. The road was opened for service in 1892. Two years afterwards operations were greatly impaired by the revolution which had broken out against Spanish rule. Hardly was the revolution ended when the Philippine-American war started. The American army took over the operation of the road for war purposes and duly compensated the owners therefor. After peace was declared the company immediately started to rehabilitate the road, going into an ambitious program of construction. Heavy losses were sustained and the company labored from that time on under increasing adverse circumstances. The world war brought the concern to the brink of disaster.

The Philippine government, foreseeing imminent paralyzation of the railroad, bought out the property in 1916, paying $4,000,000 for the entire outstanding stock. The Manila Railroad Company of the Philippine Islands was organized and this assumed the liability for the payment of $379,745 miscellaneous debts and for a bond issue of $13,236,000 held by the Manila Railway Company (1906), Limited, the original English holding company. The company then floated bonds for $13,903,000 and then another issue for $1,485,000. The total funded indebtedness of the company amounts to $27,139,000. The Philippine government has subscribed over $7,000,000 of the capital stock. When the present construction

program is completed the company will have 820 miles of main lines.

The railroad company also has the controlling interest in the Manila Hotel, the biggest and most modern hostelry in the country, and proposes to build hotels at business centers and pleasure resorts reached by the railroad. Three ships are operated to connect port terminals with island points.

English practice was followed by the original owners and all the materials and equipments employed were imported from Great Britain. Engineers of today find much to criticize both in methods and in the courses taken, and the management has been taking corrective measures at enormous expense. The Company's engineers have done no small engineering feat in re-locating the course of the road on the so-called Los Banos-San Pablo cut-off when they laid the line around a mountain securing the maximum grade of 1 per cent compensated as against 2.5 per cent of the original course. This saved the company about a quarter of a million dollars a year in operating expenses.

The road is 42-in. gage. The entire main line is now laid with 65-pound rail of American standard specifications. The road-bed is ballasted with heavy crushed gravel, replacing sand ballast, and is well maintained. The ties used are of Molave and Ipil, two Philippine woods which have a long average life. Poles are of concrete and of these woods.

The bridges for the most part cannot bear heavy traffic. The present plan calls for structural steel bridges and spans fabricated and erected in accordance with American standards modified to suit tropical conditions. There are already a number of these bridges built for the company by the Atlantic, Gulf & Pacific Company. Short spans with light loads have I-beams and concrete abutments; heavier loads and longer spans have built-up girder sections; in spans over 80 feet long trusses of various types are employed.

In the original English rolling stock equipment a 7-ton 4-wheel box was the unit standard for both passenger and freight cars. The engines were of 18 and 30 tons dead-weight. Recently the company acquired 10 H. K. Porter 72-ton locomotives and 20 American locomotives of 124 and 127 tons. The heavy types can only be used over a limited mileage on account of the comparative lightness of the bridges. The present equipment consists of 155 locomotives, 197 passenger cars, 1,831 freight cars and 52 baggage and brake vans.

The road carries about 9,000,000 passengers a year and approximately 1,000,000 tons of freight.

The most serious problem that the company has to face year in and year out is the floods during the rainy season. Wash-outs have been known to delay traffic for weeks and months. By deviating the course of freshets and by constructing long spans over low places the damage from inundation is being materially lessened. It is interesting to note that the percentage of accidents and collisions on the road is surprisingly low. The road employs about 3,000 men and at different times in the year it has 7,000 men on its payroll. The cost of labor is low. Labor troubles come pretty nearly being absolutely unknown.

A year or so ago the administration, believing that the government should be relieved of multifarious strictly non-governmental duties and proceeding on the universally-accepted theory that it is generally bad policy for governments anywhere to engage in railroading, a plan was brought forward to turn over the operation and management of the road, the government retaining ownership and control, to the J. G. White Management Corporation, a New York concern which for the last two decades has successfully managed the 15,000,000 property of the Manila Electric Company in Manila and the Philippine Railway Company above described and are managers of public utilities and industrial plants in half a dozen states in the United States, in Cuba, Central America and other countries. The matter is under advisement by the government and the Philippine legislature.

By all tokens, the railroad company has a promising future. It is fair to state that although a government-owned enterprise, the minimum of politics is observable in the conduct of the business. It would seem good policy that the government, having already demonstrated the feasibility of running the road at a profit should divest itself of the heavy burdens of operation and management, without necessarily giving up ownership and responsibility.

Equipment and Supplies

Locomotives

THE LOUISVILLE & NASHVILLE contemplates buying 50 locomotives.

THE CENTRAL OF NEW JERSEY has ordered 10 Mikado type locomotives from the American Locomotive Company.

THE SOUTHERN PACIFIC is inquiring for 34, 2-10-2 type locomotives, 6 Pacific type and 10 Mountain type locomotives.

THE REPUBLIC IRON & STEEL COMPANY has ordered 5, 0-8-0 type switching locomotives from the Baldwin Locomotive Works.

THE NORFOLK SOUTHERN, reported in the *Railway Age* of January 27 as inquiring for 4 Consolidation type locomotives, has ordered these locomotives from the Baldwin Locomotive Works.

Freight Cars

THE LOUISVILLE & NASHVILLE contemplates buying about 6,000 freight cars.

THE ILLINOIS CENTRAL has ordered 50, 30-yd. air dump cars from the Western Wheeled Scraper Company, Aurora, Ill.

THE DERBY OIL COMPANY, Wichita, Kan., has ordered 25 8,000 gal. tank cars from the Standard Tank Car Company.

THE DENVER TRAMWAY COMPANY has bought 25, 80,000 lb. capacity gondola cars through the Herr Rubincam Supply Company, Denver, Colo.

THE HILLMAN COAL COMPANY, Pittsburgh, Pa., has ordered 300 steel hopper cars of 55-tons' capacity from the Standard Steel Car Company.

THE GREAT NORTHERN, reported in the *Railway Age* of January 6 as inquiring for 100, 12,000 gal. tank cars, has ordered 125 tank cars of 12,500 gal. capacity from the Chicago Steel Car Company.

THE NEW YORK CENTRAL, reported in the *Railway Age* of February 3 as inquiring for from 5 to 10 special flat cars, has ordered 5 all-steel special flat cars of 125,000 lb. capacity, from the Standard Steel Car Company.

THE CANADIAN PACIFIC, reported in the *Railway Age* of January 20 as inquiring for 300 composite coal cars, 50 oil tank cars and 300 steel underframe flat cars, has ordered the 300 flat cars from the Eastern Car Company, 300 gondola cars from the Canadian Car & Foundry Company and will build 50 tank cars in the Canadian Pacific's shops.

THE ELGIN, JOLIET & EASTERN, reported in the *Railway Age* of February 3 as inquiring for 800 cars, has ordered 200 all steel hopper cars from the Mount Vernon Car Manufacturing Company, 100 all steel hopper cars and 100 composite gondola cars from the Pressed Steel Car Company, all of the above cars are of 70-tons' capacity. Orders were also placed for 200 composite gondola cars with the Pullman Company and for 200 composite gondola cars with the Standard Steel Car Company.

Passenger Cars

THE LOUISVILLE & NASHVILLE contemplates buying about 50 cars for passenger service.

THE CANADIAN PACIFIC, reported in the *Railway Age* of January 20 as inquiring for 12 combination mail and baggage cars, 6 cafe parlor car frames and 6 buffet car frames, has ordered this equipment from the Canadian Car & Foundry Company.

Iron and Steel

THE MISSOURI, KANSAS & TEXAS COMPANY OF TEXAS has ordered 775 tons of structural steel for use at Denison, Texas, from the Wisconsin Bridge Company.

THE CHICAGO, BURLINGTON & QUINCY has ordered 1,166 tons of structural steel consisting of truss spans, girder spans and turntables, from the American Bridge Company.

THE CHICAGO, BURLINGTON & QUINCY has ordered 3,600 tons of structural steel for its outbound freight house at Harrison street terminal, Chicago, from the Bethlehem Steel Corporation.

THE PETTIBONE-MULLIKEN COMPANY, Chicago, has ordered 1,400 tons of structural steel for the extension to its plant from the Duffin Iron Works.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 132 tons of structural steel consisting of two 77 ft. 6 in. double plate girder spans for use at Caldwell, Kan., from the American Bridge Company.

THE CHICAGO & NORTH WESTERN has ordered 246 tons of structural steel consisting of eight 60-ft. and one 40-ft. deck plate girder spans for various locations and 133 tons of girders and I-beam spans for the Ogden avenue subway, Chicago, from the American Bridge Company.

SIAM STATE RAILWAYS.—Bids will be received for the supply of 12,106 tons of steel rails and permanent way accessories by the commissioner-general of the Siam State Railways, at Bangkok, Siam, until 10 o'clock, April 16. Particulars and specifications may be obtained from C. P. Sandberg, 143 Liberty street, New York City.

Track Specialties

THE LONG ISLAND is asking for bids until 12 o'clock noon March 1, for 1,240 twin tie plates, 770 intermediate guard rail tie plates, to be rolled steel, 1,250 kegs of iron track spikes, 461 kegs of track bolts of various sizes, 8 rolled manganese switches, 36 open hearth switches, 36 hard frogs, 10 open hearth frogs and 70 guard rails. Bids are also wanted until 12 o'clock noon March 7 for 8 hard rigid frogs and 14 hard switches.

Machinery and Tools

THE MICHIGAN CENTRAL has ordered an 800 lb. hammer from the Niles-Bement-Pond Company.

THE NORFOLK & WESTERN has ordered a 2,000 lb. hammer from the Niles-Bement-Pond Company.

THE SOUTHERN PACIFIC has ordered a 400-ton double-end wheel press from the Niles-Bement-Pond Company.

THE ILLINOIS CENTRAL has ordered one 150-ton wrecking crane from the Industrial Works, Bay City, Mich.

THE BALDWIN LOCOMOTIVE WORKS has ordered 2 horizontal rod milling machines from the Niles-Bement-Pond Company.

THE DENVER & RIO GRANDE WESTERN has ordered one 75-ton wrecking crane from the Industrial Works, Bay City, Mich.

THE DENVER & SALT LAKE has ordered one 500-lb. Bradley hammer from the Herr Rubincam Supply Company, Denver, Colo.

THE NORTHERN PACIFIC has ordered a 30-in. planer, a 36-in. planer, and a 48-in. planer; also a 100-ton bushing press from the Niles-Bement-Pond Company and several other tools.

THE LONG ISLAND has purchased one 4,000-kw. and one 3,000-kw. six phase, 25-cycle, 650-volt rotary converter with the necessary transformers from the Westinghouse Electric & Manufacturing Company for the purpose of increasing the sub-station capacity of the railroad. This increase in capacity was necessitated principally by the addition of 40 motor cars and 20 electric trailer cars noted in the December 16, 1922, issue of the *Railway Age*.

Signaling

THE ILLINOIS CENTRAL will install 45 miles of block signaling between Paducah and Fulton, Ky.

Supply Trade News

The Griffin Wheel Company, Chicago, has opened a sales office at 110 East Forty-second street, New York City.

P. C. Cady, dealer in railway supplies has removed his office from 133 Greenwich street to 30 Church street, New York City.

The American Steel Foundries is preparing plans for the construction of a building 240 ft. by 330 ft. at Hammond, Ind., to cost $31,000.

The first locomotive to be built on the Pacific Coast was recently completed by the **Willamette Iron & Steel Works** at Portland, Ore. The locomotive is of the geared type and will be used for logging purposes.

Wm. G. Willcoxson, formerly with the Boss Nut Company, has joined the sales organization of the **Gold Car Heating & Lighting Company,** Brooklyn, N. Y. Mr. Willcoxson will have his headquarters at Chicago, Ill.

Plans for the reorganization of the **Trumbull Steel Company,** Warren, Ohio, under the new Ohio no par value common law, as reported in the *Railway Age* of January 27, have been approved by the stockholders. They also increased the preferred stock from $10,000,000 to $15,000,000.

H. J. Titus, until recently with the American Locomotive Company, at Paterson, N. J., and **George H. Zouck,** until recently mechanical engineer with W. M. Marshall, have joined the **Franklin Railway Supply Company, Inc.,** New York, as assistant engineers in its engineering department.

L. R. Putnam, directing manager of the American Wholesale Lumber Association, has resigned to engage in private business, effective April 1. He will become a member of the **Ferry, Hanly Advertising Company,** with headquarters at Chicago, and will have direct supervision of the building material department.

Michael J. O'Connor has been appointed special railroad representative of **William H. Keller, Inc.,** Grand Haven, Mich. Mr. O'Connor's territory is east of Chicago and his headquarters are at 631 Fulton building, Pittsburgh, Pa. He served as a locomotive engineman on the Cincinnati, Hamilton & Dayton for twenty years, was with the Chicago Pneumatic Tool Company for four years and six years with the Ingersoll-Rand Company.

On March 1 the **Bethlehem Shipbuilding Corporation, Ltd.,** will consolidate its shipbuilding and ship repairing interests in the Baltimore district under one local management, with headquarters at Sparrows Point, Md. **J. M. Willis,** at present general manager of the Baltimore dry docks plant, will be the general manager of these consolidation plants, which will be known as the Baltimore dry docks works and Sparrows Point works, of the Baltimore plant, Bethlehem Shipbuilding Corporation, Ltd.

D. E. Sawyer, formerly general sales manager of the Pollak Steel Company, New York City, has terminated his connection with that company, and opened offices at 25 West Forty-third street, New York City. Mr. Sawyer is taking eastern representation of a limited number of supply accounts for the railroad, automobile, contracting and building trades. Practically his entire business life has been associated with the steel industry, beginning with continuous service of eighteen years in the general offices of the Illinois Steel Company, Chicago. During the world war, Mr. Sawyer served as captain of ordnance, and was later transferred to the steel section of the War Industries Board. Following the armistice he served with the Pollak Steel Company.

Harry A. Pike has been appointed railway representative of the **Standard Engineering & Lubricating Company,** New York, manufacturers of Triplex water and metal treatment

and Beltcling lubricator. Mr. Pike began railroad work in 1880 as general storekeeper of the Lake Erie & Western at Lima, Ohio, now part of the New York Central lines. In 1883 he was appointed chief clerk in the motive power department of the Chicago & Atlantic, now a part of the Erie. In 1885 he was made a representative of the American Brake Company at St. Louis, and three years later went to the U. S. Metallic Packing Company in the same capacity with offices in Chicago. In 1893 he was appointed a representative of the Chicago Pneumatic Tool Company, and in 1904 was made eastern sales manager of the Flannery Bolt Company with offices in New York city. After severing his connection with that company he was associated with a number of industrial and other concerns, now returning to the railway supply interests.

The Air Reduction Company, Inc., New York has joined with Los Angeles capitalists in the formation of a company to be known as the **California Cyanide Company,** to engage in the manufacture of liquid hydro-cyanic, sodium cyanide and kindred products. The interests which have joined with the Air Reduction Company are headed by F. W. Braun of Los Angeles, who will be the president of the California Cyanide Company. Steps have been taken to raise more than $1,000,000 for working capital for the new company. Work on a new plant is expected to start immediately. In addition to Mr. Braun, other officers of the new company include: John Pike, vice-president and general manager; J. D. Neuls, in charge of field service, and R. W. Poindexter, in charge of laboratory. The general affairs of the new company will be in charge of the following directors: F. W. Braun, H. W. O'Melveny and John Pike of Los Angeles, Samuel F. Pryor and L. F. Loree, president and chairman of the executive committee of the Delaware & Hudson Railroad, and C. E. Adams, president of the Air Reduction Company, New York.

American Locomotive Company

The gross earnings of the American Locomotive Company, as shown by the annual report for the year ended December 31, 1922, were $29,122,112, compared with $35,711,507 for the previous year. The 1922 profit available for dividends was $1,100,479 against $5,083,786 reported for 1921 and $7,111,126 for 1920. After payment of preferred and common dividends, there was a deficit in 1922 of $2,149,521 against a surplus of $833,786 in the previous year. The report pointed out that while the first six months period of 1922 showed a deficit of $966,780 before dividends, the last six months showed a net profit of $2,067,258 before dividends, after allowing $200,000 for estimated taxes.

The unfilled orders on January 1, 1923 amounted to $49,349,140, compared with $3,344,300 on January 1, 1922 and $9,067,980 on July 1, 1922. Of the unfilled orders on January 1, 1923, about 1 per cent was foreign business.

The company's balance sheet as of December 31, 1922 showed an excess of current assets over current liabilities of $39,692,245, after including in current liabilities a reserve of $857,534 for income and profits taxes and a reserve of $607,384 to provide for current shrinkage in the value of notes listed as current assets.

President Andrew Fletcher, in his report, says: "The extensive buying by the domestic railroads during the last six months of the fiscal year has continued to this date and the prospects are that the company will have good business throughout its fiscal year ending December 31, 1923."

CONDENSED INCOME ACCOUNT OF THE AMERICAN LOCOMOTIVE COMPANY, MONTREAL LOCOMOTIVE WORKS, LIMITED, AND AMERICAN LOCOMOTIVE SALES CORPORATION—COMBINED

	12 Months ended Dec. 31, 1922	12 Months ended Dec. 31, 1921
Gross earnings	$29,122,112	$35,711,507
Manufacturing, maintenance and administrative expenses and depreciation	27,735,635	30,106,479
Interest on bonds of constituent companies, etc.	85,998	86,243
	$1,300,479	$5,518,786
Deduct for United States income and profits taxes	200,000	435,000
Available profit	$1,100,479	$5,083,786
Dividends on preferred stock at 7 per cent	1,750,000	1,750,000
Dividends on common stock at 6 per cent	1,500,000	1,500,000
Deficit	$2,149,521	*$1,833,786
Reserve for additions and betterments	.....	1,000,000
Deficit	$2,149,521	*833,786

* Surplus.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company will close bids on February 26 for the construction of a freight and passenger station at Lyons, Kan.

BALTIMORE & OHIO.—This company is calling for bids for the construction of a water treating plant at Ivorydale, Ohio, a suburb of Cincinnati.

CHESAPEAKE & OHIO.—This company is building a new freight station at Norfolk, Va., at a cost of $150,000 and contemplates the expenditure of approximately $4,000,000 in the improvement of terminal facilities at Newport News.

CHICAGO, BURLINGTON & QUINCY.—This company will close bids on March 2 for the construction of a new freight and passenger station at Weston, Mo., reported in the *Railway Age* of January 27.

CHICAGO & NORTH WESTERN.—This company has awarded a contract to the Graver Corporation, East Chicago, Ind., for the construction of 38 tender tanks. A contract has also been awarded to this company for the construction of a water softener with a capacity of 6,000 gal. per hour at Montfort Junction, Wis.

CHICAGO, ROCK ISLAND & PACIFIC.—This company will construct five additional storage tracks, each 1,000 ft. long, at Caldwell, Kan. This company will enlarge its yard and construct a coaling station at Herington, Kan. This company has also called for bids for the construction of 16 miles of second track between Paxico, Kan., and Volland, and seven miles of second track between Latimer and Herington.

DELAWARE & HUDSON.—This company is negotiating with the city of Scranton, Pa., on a proposal to eliminate a number of highway grade crossings at that point.

FORT WAYNE UNION RAILWAY.—This company has applied to the Interstate Commerce Commission for permission to construct at Fort Wayne, Ind., a belt line to connect with the New York, Chicago & St. Louis, the Wabash, the New York Central and the Pennsylvania.

GREAT NORTHERN.—This company has awarded a contract to A. Guthrie & Co., St. Paul, Minn., for the construction of 19 miles of second track between Java, Mont., and Nyack, as reported in the *Railway Age* of February 3.

GREAT NORTHERN.—This company is calling for bids for the construction of a 145 ft. by 300 ft. addition to the car repair shop at St. Cloud, Minn., to cost approximately $100,000.

GREAT NORTHERN.—This company will construct a 30 ft. by 450 ft. addition to its woodworking shop and a 600 ft. monitor on its car repair shed at Great Falls, Mont., to cost approximately $42,000. Bids will be called for about March 1.

MISSOURI, KANSAS & TEXAS.—This company is calling for bids for the construction of water treating plants at 25 points along its line.

NORTHERN PACIFIC.—This company will construct a steel and concrete bridge, supported by concrete bents and abutments, with a span of 80 ft. across Central avenue, Minneapolis, Minn. A contract for the fabrication of the steel has been awarded to the American Bridge Company, New York. Bids for the remainder of the structure will be called for about March 1.

PACIFIC ELECTRIC.—This company contemplates the construction of a subway at Olive street, Los Angeles, Cal.

PERE MARQUETTE.—This company will construct second track from Plymouth, Mich., to Detroit; new stations at Sarnia, Ontario, and Hersey, Mich.; ice houses at Ludington, Mich., Port Huron and Farwell, and shop improvements at Wyoming, Mich., and Grand Rapids.

SOUTHERN PACIFIC.—This company contemplates the construction of additional shop facilities at Los Angeles, Cal., to cost

approximately $1,000,000. The buildings to be constructed include a car repair shop, a forge and blacksmith shop, a one-story boiler shop, a new locomotive house and related facilities. The company is now constructing an acetylene generator plant with a distributing system throughout the entire yards and has nearly completed a two-story oil house, 34 ft. by 86 ft., with a loading platform, 42 ft. by 100 ft.

UNION PACIFIC.—This company has awarded a contract to the Lynch-Cannon Engineering Company, Los Angeles, Cal., for the construction of the new terminal facilities at Los Angeles, Cal., reported in the *Railway Age* of December 23.

UNION PACIFIC.—This company has awarded a contract to the Graver Corporation, East Chicago, Ind., for the construction of water softeners as follows: Las Vegas, Nev., 18,000 gal. per hour capacity; Dry Lake, Nev., 10,000 gal. per hour; Box, Nev., 10,000 gal.; Kelso, Calif., 10,000 gal.

Canadian Pacific's Program for 1923

An extensive program of improvements to be undertaken by the Canadian Pacific has been announced as follows:

At Fort William, Ont., the main work to be undertaken will be the replacement of the two freight sheds which were destroyed by fire last year with buildings of an improved type.

At Port Arthur, Ont., additional trackage will be provided to accommodate grain consigned to the terminal elevators at Current River.

Coaling plants of the latest type will be built at Ignace and Kenora, Ont., Winnipeg, Man., Estevan, Sask., and Red Deer, Alta.

Additional trackage to meet increased traffic will be provided at Upsala, Dyment, Dryden and Rennie, in Ontario; at Weston shops, St. Claude, Burnside, Ameer, Murray Park, Springstein, Fannystelle and Trump, in Manitoba; at Killaly, Frys, Falcon, Dingley, Regina Beach and Lemberg, in Saskatchewan; at Coaldale, Coutts, Stirling, Magrath, Raymond, Glenbow, Bankhead, Eldon, Lake Louise, Red Deer, Lacombe, Ponoka and Strathcona, in Alberta; and at Mara, Ruby Creek and Yale in British Columbia.

New stations will be provided at Arden, Darlingford and Carnduff, in Manitoba, at Congress, in Saskatchewan, and at Lake Windermere, in British Columbia.

Extensions to stations and freight sheds will be made at a number of other points.

Lunch rooms will be built at Ignace, Ont., and Swift Current, Sask.

At Winnipeg Beach the pier will be renewed and enlarged and other improvements undertaken.

Automatic signal systems will be installed at MacGregor, Man., at Petain, B. C. (which is the junction point with the Kettle Valley Railway), and through the Kicking Horse canyon between Field and Golden, B. C. To provide for the increase in westbound traffic certain revisions of grade will be undertaken in the vicinity of Golden. New stockyards will be erected at Broomhill, Man., Frobisher, Sask., Ambassador, Sask., Revenue, Sask., Broadacres, Sask., Wolfe, Sask., Nightingale., Alta., Spring Coulee, Alta., and Carstairs, Alta. Water supplies will be improved at Frys, Sask., Lynch, Sask., Wawota, Sask., Oxbow, Sask., Hirsch, Sask., Newdale, Man., Birtle, Man., Weyburn, Sask., Sutherland, Sask., Coronation, Alta., and Kerriemuir, Alta. New steel water tanks will be erected at Moose Jaw, Sask., Outlook, Sask., and Parkbeg, Sask.

An extension will be made to the engine house at Hardisty, Alta., and extensive improvements made to the mechanical plants at Weston (Ont.) shops, Neudorf, Sask., Reston., Sask., Minnedosa, Man., Broadview, Regina, Sask., Calgary, Alta., and Alyth, Alta.

To provide for the increased perishable traffic, particularly fruit, changes and extensions will be made in the icing facilities at Winnipeg, Brandon, Man., and Sutherland, Sask.

Provision is made for continuance of the work of lining Connaught tunnel and also for the re-lining of the loop tunnel on the Crow's Nest line.

Among the other large works which will be rushed to completion will be the new ocean pier at Vancouver, the extension to the coaling plant at Fort William, and the building of a steam ferry for automobile traffic between Bellingham and Vancouver Island.

The usual allowance has been made for ballasting, for the replacement of bridges by heavier and more permanent structures, and for the replacement of rails in the main track and crossing sidings with others of greater weight to accommodate the heavier types of rolling stock. The construction of a new terminal office building at Victoria for the accommodation of the British Columbia coast service is under consideration, and a decision will be made as soon as plans have been prepared and considered.

An announcement respecting branch line construction has been deferred until March 1, so that time will be afforded for the consideration of all aspects of the situation.

In preparing the program consideration will be given both to the opening up of new territory for settlement and also for the provision of facilities for producers who are now located so far from existing lines that they find hauling costs to the railway stations a heavy burden. All data in connection with projected lines has been prepared and is now undergoing exhaustive analysis.

On the Kettle Valley Railway a number of bridges will be replaced with steel structures, and improvements will be made to the facilities at Penticton, B. C., and Princeton. The branch line from Okanagan Falls to Oliver will be completed.

On the Esquimalt & Nanaimo Railway the program of bridge replacement will be continued. Provision will be made for improvements to passenger train equipment and additional trackage will be furnished to provide for the constantly growing log and lumber traffic.

Work will be completed on the program started last year to replace bridges on the Lachute sub-division in Quebec, making that line good for the heaviest power.

A new freight shed will be built at St. Gabriel, P. Q. to take care of increase in business at the point, and the roundhouse at North Bay, Ont., will be extended to take care of larger power now being operated out of that terminal.

The construction of heavier engines in recent years has increased the length of trains, and to take care of this condition, additional trackage will be provided in New Brunswick at Enniskillen, Lakeview, Canterbury, and Deer Lake. In Quebec at Adamsville, Berthier Jct., and Three Rivers, and in Ontario at Petewawa, Cobden, Meath, Bedell, Dalton, Gutelius and Otter.

The rock ballast program will be continued to the extent of 150 miles on the main line between Montreal and Toronto which will bring it as far west as Bowmanville; 25 miles will be done on the Three Rivers sub-division, which will complete rock ballasting between Montreal and Three Rivers, and 25 miles will be done on the Parry Sound and Cartier sub-divisions in continuation of the work there. There will also be the usual allotment of gravel ballast on the New Brunswick, Ontario and Algoma Districts, and an extensive program of tile drainage and ditching will be carried out to improve main track drainage.

Steel water tanks of from 60,000 to 100,000 gal. capacity will be built at McAdam Junction, N. B., and in Ontario at Guelph Junction, Nemegos, Markstay, and Grassett, and at St. Johns, Que.

Modern coaling plants will be constructed at Megantic, Que., and Jackfish, Ont., and a 90-ft. turntable to handle heaviest power will be installed at MacTier, Ont.

Extension to station facilities will be built at East Lyndon, Me., and in Ontario at Mattawa, Hagar, Cutler, and Dean Lake.

Additional mechanical and car department equipment will be provided at Hochelaga, Glen Yard and Place Viger, P. Q., and Smiths Falls, Toronto, and North Bay, Ont., and an up-to-date electrical interlocking plant will be provided to control traffic at Westmount in and out of Glen Yard, and at the same point a subway will be built between the station and the island platform. Umbrella roofs will also be constructed over both platforms at this point, and over the westbound platform at Montreal West.

EIGHT IMPORTANT railway lines have recently reported additions to their postal car equipment of 91 new steel cars for use as traveling railway post offices, according to an announcement made by the Post Office Department. The new mail cars, constructed according to the latest designs, will facilitate the handling of mails where they are used and will also provide greater safety for clerks working in them. The following railroads have informed the department of the construction of new steel cars: Baltimore & Ohio, 8; Boston & Maine, 5; Chicago & North Western, 5; Chicago, Burlington & Quincy, 32; Colorado & Southern, 5; Fort Worth & Denver City, 4; Pennsylvania, 25; Southern, 25.

Railway Financial News

BOSTON & MAINE.—*Operations in* 1922.—See article on another page of this issue entitled "Boston & Maine Shows Remarkable Improvement."

BUFFALO, ROCHESTER & PITTSBURGH.—*Asks Authority for Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,920,000 of 5 per cent equipment notes.

CHICAGO, MEMPHIS & GULF.—*Acquisition.*—See Illinois Central.

ILLINOIS CENTRAL.—*Lease of C. M. & G. Approved.*—The Interstate Commerce Commission has authorized the acquisition of the property of the Chicago, Memphis & Gulf by lease on condition that none of its stock shall be disposed of without the consent of the commission.

Bond Issue.—Kuhn, Loeb & Co. have purchased $13,447,000 Illinois Central refunding mortgage gold bonds, due November 1, 1955, bearing 5 per cent interest. The bonds will be issued under the refunding mortgage of the company, dated November 1, 1908. As the terms of that mortgage provide for interest at not exceeding 4 per cent the additional 1 per cent interest which these bonds bear will be secured under a supplemental indenture by a lien on the property, subject to the refunding mortgage (except approximately 2.6 miles) subordinate to the lien of the principal of the refunding mortgage bonds and interest, thereon, at the rate of 4 per cent per annum. The issuance and sale of these bonds are subject to the approval of the Interstate Commerce Commission and any other public authorities that may be necessary. The bonds will be offered at 99 and accrued interest, yielding more than 5.05 per cent.

NORTHERN PACIFIC.—*Equipment Trusts Sold.*—J. P. Morgan & Co., the First National Bank and the National City Company have sold privately $4,500,000 one to ten year 4½ per cent equipment trust certificates at prices to yield 5 per cent.

READING COMPANY.—*Objections to Second Plan.*—The principal objections made to the modified segregation plan filed by the Reading Companies are that the securities offered the bondholders are not of an equal value of the bonds to be surrendered and that the proposed plan is a violation of the contract under which the holders purchased the bonds. The bonds were bought, it is asserted, at 100 per cent on the dollar and, as the result of the dissolution proceedings, the bonds have depreciated to about 85, and the securities offered in exchange for the present holdings will not sell on the basis of the original bonds, it is asserted.

The Continental Insurance Company and the Fidelity-Phoenix Insurance Company of New York have filed the following objection to the plan:

"The objectionable feature of the disposition sought to be made in the second modified plan as to the sinking fund is that the Reading company becomes interested in the amount of coal which the coal company mines both before and after the payment by the coal company of its part of the indebtedness now represented by the general mortgage."

Dividends Declared

ERIE & PITTSBURGH.—1¾ per cent, quarterly, payable March 10 to holders of record February 28.

FONDA, JOHNSTOWN & GLOVERSVILLE.—Preferred, 1½ per cent, quarterly, payable March 15 to holders of record March 10.

NEW YORK, CHICAGO & ST. LOUIS.—First preferred, 5 per cent, payable February 28.

Trend of Railway Stock and Bond Prices

	Feb. 20	Last Week	Last Year
Average price of 20 representative railway stocks	68.90	68.63	59.51
Average price of 20 representative railway bonds	85.14	85.51	82.18

Railway Officers

Executive

E. C. Guion, traffic manager of the Texas City Terminal, with headquarters at Galveston, Tex., has been elected vice-president in charge of traffic and will retain his present headquarters.

S. J. Hungerford has been appointed vice-president in charge of operation and maintenance and **W. D. Robb,** vice-president in charge of natural resources, of the Canadian National Railways, with which the Grand Trunk has recently been consolidated.

Financial, Legal and Accounting

J. B. Barnes, Jr., has been appointed attorney for the Chicago & North Western in the State of Wyoming, with headquarters at Casper, Wyo.

J. F. Cox, claim agent of the Nebraska division of the Union Pacific, with headquarters at Omaha, Neb., has been promoted to assistant general claim agent, with the same headquarters.

Operating

J. M. Smith, chief dispatcher of the Union Pacific, with headquarters at Kansas City, Mo., has been promoted to trainmaster, with headquarters at North Platte, Neb.

J. A. Christie, superintendent on the Atchison, Topeka & Santa Fe, with headquarters at Needles, Cal., has been appointed acting superintendent of terminals at San Francisco, Cal., succeeding G. W. Lupton, whose promotion to assistant to the vice-president, with headquarters at Chicago, was reported in the *Railway Age* of February 17. **C. G. Fluhr,** assistant superintendent, with headquarters at Needles, Cal., has been promoted to acting superintendent, with the same headquarters, succeeding Mr. Christie.

Traffic

Edward Hart, Jr., whose promotion to assistant freight traffic manager of the Baltimore & Ohio, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of January 27, was born on December 17, 1860, at Allahabad, British India. He was educated at schools and colleges in England and the United States, and entered railway service in 1880 as a clerk in the auditor's office of the Louisville & Nashville at Louisville, Ky. After a few years in this work, he was engaged for a short time as a bookkeeper in the stockyards at Covington, Ky., but returned to the auditing office of the Louisville & Nashville in 1882. He was transferred as a clerk to the office of the general storekeeper in 1883, and held this position for one year, when he became clerk in the auditing department of the Louisville, New Albany & St. Louis. From 1885 to 1892 he served as contracting agent at Louisville for the Canada Southern, and in 1893, he was appointed general agent of

Edward Hart, Jr.

the Cincinnati, Wabash & Michigan and the Elkhart Line, at Louisville. A year later he was appointed agent of the Traders Dispatch and in 1895 was made general southern agent. He was appointed assistant general agent of the Baltimore & Ohio on April 1, 1897, with headquarters at Louisville. In October of that year he was promoted to general agent with the same headquarters and served in this capacity until 1901, when he was promoted to assistant general freight agent, with headquarters at St. Louis, Mo. On January 1, 1913, he was promoted to western general freight agent, with the same headquarters, and held this position until federal control, when his title was changed to assistant general freight agent. Upon the termination of federal control in March, 1920, he was promoted to general freight agent, with headquarters at St. Louis, in which capacity he was serving until January 1, 1923, when he was promoted to assistant freight traffic manager, with headquarters at St. Louis.

Mechanical

J. A. Marshall, road foreman of engines of the Northern Pacific, with headquarters at Duluth, Minn., has been promoted to master mechanic of the Lake Superior division with the same headquarters. **L. J. Gallagher** has been appointed road foreman of engines with headquarters at Missoula, Mont.

W. J. Kirsch, master mechanic of the Central division of the Union Pacific, with headquarters at Marysville, Kan., has been transferred to the Kansas division, with headquarters at Kansas City, Kan. **H. L. Ellerbush** has been appointed master mechanic of the Central division, with headquarters at Marysville, Kan., succeeding Mr. Kirsch.

J. M. Kilfoyle, terminal master mechanic of the Union Pacific with headquarters at Pocatello, Idaho, has been appointed master mechanic of the Utah division with the same headquarters, succeeding D. Gratian, resigned. **M. J. Powers,** assistant superintendent of motive power of the Colorado & Southern, has been appointed terminal master mechanic of the Union Pacific with headquarters at Pocatello, Idaho, succeeding Mr. Kilfoyle.

Engineering, Maintenance of Way and Signaling

L. L. Keihm has been appointed assistant signal supervisor of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal.

Obituary

W. B. Biddle, former president of the St. Louis-San Francisco, died at Chicago on February 19. Mr. Biddle was born at Beloit, Wis., on November 12, 1856, and was educated at the place. He entered railway service in 1878 as a freight brakeman on the Atchison, Topeka & Santa Fe. He subsequently was made a station agent. From 1882 to 1886 he was chief clerk to the general freight agent of the Atlantic & Pacific; from 1886 to 1887, assistant general freight agent, and from 1887 to 1888, division freight and passenger agent, of that road. From 1888 to 1890 he was assistant general freight agent of the Atchison, Topeka & Santa Fe; from 1890 to November 1, 1894, assistant freight traffic manager, and from November 1, 1894, to March 1, 1905, freight traffic manager. In March, 1905, he was appointed third vice-president of the Rock Island Lines. In 1907 he was appointed vice-president in charge of traffic of the entire Rock Island-Frisco system, which consisted at that time of the Rock Island Lines, the St. Louis & San Francisco, the Chicago & Eastern Illinois and all of their subsidiaries. When the Rock Island-Frisco system was broken up he went with the Frisco as vice-president in charge of traffic. When the Frisco went into receivership on May 27, 1913, he was appointed chief traffic officer, and on July 14, 1914, he was appointed receiver as well as chief traffic officer. When the road was taken out of the receiver's hands and reorganization was effected, he was elected second vice-president in charge of both operation and traffic and in January, 1917, he was elected president of the St. Louis-San Francisco.

W. B. Biddle

M. P. Blauvelt, vice-president of the Illinois Central, with headquarters at Chicago, died in that city on February 18. Mr. Blauvelt was born on February 25, 1865, at Suffern, N. Y., and was educated at the Goshen Collegiate Institute. He entered railway service in 1885 as a clerk in the freight office of the Delaware, Lackawanna & Western, at Hoboken, N. J. In October, 1887, he entered the service of the New York, Lake Erie & Western as a clerk in the office of the auditor of traffic, and was transferred to the office of the third vice-president and auditor in February, 1891. He was appointed general bookkeeper of the Chicago & Erie in 1896, and the same year was appointed chief clerk in the accounting department of the Erie. He served in this capacity until June, 1902, when he was promoted to assistant auditor. In October of that year he was promoted to auditor and in January, 1903, to general auditor. He was promoted to comptroller in January, 1904, and held this position until February 8, 1902, when he was appointed comptroller of the Illinois Central and the Yazoo & Mississippi Valley, with headquarters at Chicago. He was appointed comptroller of the Lehigh Valley with headquarters at New York city in July, 1917, serving in this capacity until January, 1918, when he was elected vice-president. During the period of federal control he served as assistant regional director of the Allegheny region, with headquarters at Philadelphia, Pa. In November, 1919, he was elected vice-president of the Illinois Central and the Yazoo & Mississippi Valley, with headquarters at Chicago, in which position he was serving at the time of his death.

M. P. Blauvelt

J. E. Blunt, former chief engineer of the Chicago & North Western, died at Pasadena, Cal., on February 20.

A. D. Gray, assistant treasurer of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., died in that city on February 18. He was born in Liverpool, Nova Scotia, on September 8, 1856. He entered the service of the Atchison, Topeka & Santa Fe in 1881 as a clerk in the office of the car accountant and was transferred to the treasurer's office in March, 1884. He was promoted to assistant cashier in 1887 and to cashier in 1906. In October, 1916, he was promoted to assistant treasurer, in which capacity he was serving at the time of his death.

SEVEN THOUSAND cars of grain have been loaded at Winnipeg, Man., since September 1, 1922, for the Western coast by the Canadian Pacific. This represents 10,234,000 bushels of grain for export from Vancouver.